

VIRGINIA:

More especially the South part thereof,
Richly and truly valued: viz.

The fertile *Carolana*, and no lesse excellent Isle of *Roa-*
noak, of Latitude from 31. to 37. Degr. relating the
meanes of rayfing infinite profits to the Adventu-
rers and Planters.

The second Edition, with Addition of

THE DISCOVERY OF SILKWORMS,
with their benefit.

And Implanting of Mulberry Trees.

A L S O

The Dressing of Vines, for the rich Trade of ma-
king Wines in VIRGINIA.

Together with

The making of the Saw-mill, very usefull in *Virginia*,
for cutting of Timber and Clapbord to build with-
all, and its Conversion to many as profitable Uses.

By E. W. Gent.

L O N D O N,

Printed by T. H. for John Stephenson, at the Signe of
the Sun below Ludgate. 1650.

ANNEX IV

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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1911

THE DISCOVERY OF THE

1951-1952

ALDO

THE DRILLING OF VINES, FOR THE TRADE

The marking of the saw-mill, very difficult in view of the fact that the mill was not to be graded at all.

...to the ... of the ...

.....

By E. M. C. H.

1914

THE UNIVERSITY OF CHICAGO

0701 ... A WORLD AND THE

To the worthy Gentlemen, Adventurers and Planters in *VIRGINIA*.

My loving Friends:



Thought it convenient heere briefly to minde you of those Necessaries, that if wanted there, would greatly prove your prejudice, and render you obnoxious to many evils, which are these.

Necessaries for Planters.

For Apparell: Provide each man 1. Monmouth Cap, 1. waist-coat, 1. Suit of Canvas, Bands, Shirts, Shooes, Stockings, Canvas to make sheets; with Bed and Bolster to lye in Virginia, 1. Rugge, and Blankets.

For Armes: Provide 1. Suit of compleat light Armour, and each man 1. Sword, 1. Musket or Fowling Peece, with Powder and Shot convenient.

For Household stuffe: Provide one great Iron Pot, large and small Kettles, Skillets, Frying pannes, Gridiron, Spit, Platters, Dishes, Spoons, Knives, Sugar, Spice, Fruit, and Strong water at Sea for sicke men.

For Tools: Provide Hoes broad and narrow, Axes broad and narrow, Handsawes, two-hand-sawes, whipsaws, Hammers, Shovels, Spades, Augors, Piercers, Gimbles, Hatchets, Hand-bills, Frowes to cleave pale, Pickaxes, Nails of all sorts, 1. Grindstone, Nets, Hooks, Lines, Plowes: All which accomodation wherewith each to be well furnished, together with his Transportation,

tation, which is ordinarily 6l. a man, and 3l. a tun his goods,
may amount unto 20l. a man, charges.

Nor needs the carefull Adventurer much doubt what wares
may prove his profit there. For any Commodities of this Coun-
try are good Merchandize transported thither. viz. Strong
waters, Haberdashers wares, Ironmongers wares, Drapers
wares, Stationers wares, and many other wares which those ste-
rill witted Americans doe easily admire. But your judgements
are sufficient. And likewise I have further discovered them in
the ensuing Treatise of the Incomparable VIRGINIA.
So wishing you all prosperous happinesse and happy prosperity
heere, and in the world to come eternall blisse, I rest

Your faithfull

Servant,

E. W.

To the Supreme Authority of this Nation, The
Parliament of ENGLAND.

Right Honorable :



His Dedication in it selfe unworthy the honour of an addresse to your Grandiurs, and of a foile too dead in shaddow to approach neere your most vigorous lustre, reposes it selfe yet upon a confidence that in imitation of that God of whom you are in power the proper Representatives who vouchsafed graciously to accept a poore paire of Turtles from those whose abilities could not ascend to a more rich oblation, you will be pleased to cast a favourable aspect upon this humble offering, as proceeding from a gratefull cleere and sincere intension, whose desire being strongly passionate to present Your Honours with something more worthy the auspice of a beginning Teare, is circumscribed by a narrownesse of abilities and fortunes.

And indeed my lownesse had prompted me to have found out a more humble Patron for this Treatise; but since the Interest of that Nation you have so happily restored to its just and native liberty is the principall ayme intended in it, since the publick acknowledgements of the world unites in this common testimony, That God hath subscribed to all your Heroick and Christian undertakings with his own broad seal of Victory, with his owne field word, Go on and prosper: led you through the red sea of blood into the Land of Canaan, into the Harvest and Vintage of Israel, since Pharoah and his mighty ones have been swallowed up in the rapid current in the hideous cataracts of their ambitious opposition; and have by loud and convincing testimonies (testimonies attracting the admiration of your friends, and confounding the malice of your enemies) made it a blessed object of your consideration, that the preservation and fixure requires a blessing no lesse sublime, and a vertue

no lesse exalted, then the acquisition and tenure of conquests, made good in the eyes of Christendome, by vindicating the English Honour upon the British Ocean with a puissant Navy, a formidable subject of amazement to the Fœraine Enemies of your Sion, by a strong winged prosecution of the Irish Assassins, a spacious lettered example to teach English Mutineers what they may expect by the red sentence of justice upon Irish Rebels: All insauours holding forth the way to improve the interest of this Nation, are improperly addressed to any other then your selves, who as you have been the unexampled instruments of our *unpainted* and liberty, ought to be the sole Iudges of whatsoever may relate to our future felicity.

We should have suspected the sincerity of History in its delineation of the Majesty which sat upon that August, and venerable Roman Senats, after having made the Land tremble under the terror of their Armies, the sea to labour under the burthen of their numerous Navies, after having delivered all power oppressing the universall liberty to the revenging beak of their victorious Eagles, and minted the Governments of the world by the Roman Standard; had not the Concentricity of your undertakings, had not the Homogeniousnesse of your actions and felicity, vindicated and asserted the honour of antiquity, and rayed your reputations upon so high a wing of glory, that Posterity will be lost in the same mist of jealousy and incredulity of your owne augustnesse, yet for ever want the reviuall of such examples the restauration of such presidents to confirme them.

And to the end you may in all things either parallell or transcend that Romane greatnesse, of which you are the inimitable exemplary, who enriched the heart and strengthned the armes of their Dominions by dispersing Colonies in all Angles of their Empire, Your pious care hath already layd a most signall foundation by inviting encouragements to undertakers of that nature: In the pursuit whereof let me beg the liberty in this Paper, under your Honours Patronage to publish the many pressing and convincing reasons which have and may induce you to prosecute a designe of such universall concernment.

1. It will disburthen this Nation of many indigent persons, who having formerly perhaps enjoyed a fulnesse of abused or forfeited plenty, & at the present reduced to an inequality of such subsistence, are commonly prompted to their owne and other mens ruine by making the high wayes (which should be as publike and inviolable a sanctuary as the most sacred places) an ambuscado to innocent Travellers, by which interruption of passages, there is commonly occasioned a decay and discouragement of commerce, and dayly examples informe us, that Prisons at present are almost as full of criminall as indebted persons.

2. It will take off all Parish charges, in providing for destitute Minors and Orphans, whereof there are at present a burthensome multitude, wherby the Parishes so freed, may with greater alacrity and ability, part with contributory moneys to maintaine, recruite, and incourage your Armies and Navies.

3. Those Orphans so provided for may by Gods blessings upon their labours become happy and wealthy instruments, advantageous to the place of their nativity in particular, and their whole Nation in generall. Whereas the condition of their birth and the usuall way of exposing them, makes them capable of no more gainfull calling then that of day-labourers, or which is more frequent hereditary beggars.

4. The Republick in its present constitution abounding with so dangerous a number of male contents, who commonly like Shrubs under high and spreading Cedars, imagine the spacious height of others to be the cause of their owne lownesse, may by this means be honourably secured, and such men removing their discontents with their persons, will have a brave and ample theater to make their merits and abilities emergent, and a large field to sow and reape the fruit of all their honest industrious and publick intentions.

5. It will to admiration increase the number of Ships and Seamen, (the brazen wall of this Nation) all materialls to advance Navigation, being abundantly to be furnished out of those Countries,

and the more ingenious Passengers by conference and disputation with the knowing Mariner, will take a great delight, satisfaction, and ambition, to attaine to the Theory of that knowledge, while the lesse capable being accustomed and assigned to an usuall part in the toyle thereof, and instructed by the ordinary Seaman, will be brought to a good readinesse therein and speedy perfection.

6. All Materialls for shipping, as Timber, Cordage, Sailes, Iron, Bresse, Ordnance of both mettals, and what ever else we are necessitated to supply our wants with out of the Easterne Countries, who make it not unusuall to take advantage of their neighbours necessity, and often times upon a pretence of difference or misintelligence betwixt us, embrace an occasion to over-rate or over-custome their commodities, or (a reall quarrell widening) sell it to other Nations from whence we are forced to supply our selves at a second or third Market.

7. It will give us the liberty of storing a great part of Europe with a larger plenty of incomparably better fish, then the Hollander hath found meanes to furnish it withall, and will make us in no long tract of time, if industriously prosecuted, & equal, if not transcend him in that his most beneficiall staple.

8. It will be to this Common wealth a standing and plentifull Magazine of Wheat, Rice, Coleseed, Rapeseed, Flax, Cotton, Salt, Pot-ashes, Sope-ashes, Sugars, Wines, Silke, Olives, and what ever single is the staple of other Nations, shall be found in this joyntly collected.

9. It will furnish us with rich Furrs, Buffs, Hides, Tallow, Biese, Pork, &c. the growth and increase of Cattell in this Nation, receiving a grand interruption and stop, by killing commonly very hopefull yong breed to furnish our markets, or store our shipping, meerly occasioned by want of ground to feed them, whereas those Provinces afford such a large proportion of rich ground, that neither the increase of this or the succeeding age can in any reasonable probability overferd the Moiety.

10. By it many of your Honours Reformadoes and disbanded souldiers being dismiss with the payment of such part of their arrears as your owne judgement (guided by the rule of your immense disbursements) shall thinke a convenient recompence, by transporting themselves thither may change their desperate fortunes into a happy certainty of condition, and a contented livelyhood, which will be a means not only to disburden this Republick, as before) but to remove all those clamors usuallly disturbing your publick consultations, and to win upon them by your bounty to invert all those fearful imprecations, with which they would (as much as in them lies) unlesse your proceedings, into a joyfull and fervent concurrence of prayers to the Almighty to shoure downe blessings upon your heads, who, next under him, are the glorious and visible instruments of their increasing happinesse.

11. It will be a generous and moving encouragement to all industrious and publick spirits, to imploy those parts with which God and nature hath blessed them in the discovery of such happy inventions as may drive on hopefull designs with a lesser number of hands then is usuallly assigned to them, which issues of the brain are legitimate and geniall to beginning Plantations, where the greatest want is that of people: but for our own or other popular Kingdoms where we are commonly overprest with a greater multitude of labourers then employers, by much lesse acceptable, since our indigent people look upon such Engins meerly as Monoppolies to engrosse their livelihood

12. It will adde a very considerable increase to the Revenue of your Honours own Customs, and I shal assume the liberty in all humility to offer up to your more advised deliberation by way of supplement to your incomes, whether such malefactors as the letter of the law dooms to death, yet leaves a latitude for extent of mercy in the bosome of the Judges, whose release oftentimes proves not only ruinous to them so discharged, since not seldome they returne to their vomit, but pernicious to the Commonwealth reinvaded

by their insolencies and disorders, might not be made instrumentally serviceable to the State, if (as it is frequent in other Countreys, where they are condemned to the Gallies) by way of reparation for their crime, they were sentenced to serve a quantity of years according to the nature of their offences, which expired, they should enjoy all immunities with others, and by this course be reduced and accustomed to a regular course of life. Of these a thousand transported and employed by an understanding improver, would by their labour advance an income of forty thousand pounds sterling *per annum*, at the least, and so proportionably according to their number.

That all these, and many inestimable benefits may have their rise, increase, and perfection from the South parts of Virginia, a Country unquestionably our own, devolved to us by a just title, and discovered by John Cabot at the English expences, who found out and took seisure, together with the voluntary submission of the Natives to the English obedience of all that Continent from Cape Florida Northward, the excellent temper of the aire, the large proportion of ground, the incredible richnesse of soile, the admirable abundance of Minerals, vegetables, medicinall drugs, timber, scitimation, no lesse proper for all European commodities, then all those Staples which entitle China, Persia, and other the more opulent Provinces of the East to their wealth, reputation, and greatness (besides the most Christian of all improvements, the converting many thousands of the Natives) is agreed upon by all who have ever viewed the Country: To which the judgement of the most incomparable Raleigh may be a convincing assertion, whose preferring of that Country before either the North of Virginia or New-England, though it may sufficiently command my submission and acquiescence; yet for more particular satisfaction be pleased to accept these reasons for such pre-^{er}ation.

1. The apparent danger all the Colonies may be in if this be not possessed by the English, to prevent the Spaniard, who already hath seated himself on the North of Florida, and on the back of Virginia in 34, where he is already possessed of rich silver Mines, and will no doubt vomit his fury and malice upon the neighbour Plantations, if a prehabitation anticipate not his intentions, which backt with your authority, he understands too much of your power, and is too sadly acquainted with your admirable successes and generous resolutions, not to sit downe by any affronts offered to those under the wings of your protection, to attempt any thing against such who are immediately

diately your owne Colony, lest thereby he administers matter of a fire, to which his owne fortunes in the Indies must be a fewel, and himselfe raked up in its ashes.

2. But the South of Virginia having a contiguous Ledge of at the least one hundred Ilands, and in the midst of those the incomparable Roanoak; the most of them at the same distance from the Continent that the Ile of Wight is from Hampshire, all of hazardous access to Forrainers, and affording a secure convenience from surprizall by the Natives, will if possessed and protected by your power, be as an inoffensive Nursery to receive an infant Colony, till by an occasion of strength and number, we may poure our selves from thence upon the Mayneland, as our Ancestors the Saxons from the Ile of Tannet into Brittain.

3. It dispences a moderate equality of heat and cold between the two violent extremes thereof in *Barbadoes* and *New England*.

It will admit of all things produisible in any other part of the World, lying in the same Parallel with China, Persia, Japan, Cochinchina, Candia, Cyprus, Sicily, the Southern parts of Greece, Spain, Italy, and the opposite Regions of Africa.

4. It hath besides all Timber for shipping, the best and reddest Cedars, and Cypress trees that may be found in any Countrey.

5. And lastly, the planting of this Collony will open a most compendious passage to the discovery of those more opulent Kingdomes of China, Cochinchina, Cathaya, Japan, the Phillipines, Summatra, and all those beauteous and opulent Provinces of the East Indies, which beyond dispute lye open to those Seas which wash the South-West parts of Virginia, through whose bosome all those most precious commodities which enable the Chinesie, Cathayan, Persian, and Indostan Empires, may more conveniently, speedily, with more security and lesse expences be transported thence from Spawhawn, or other remoter Provinces to Gombroon, by a long dangerous and expensive Caravane, and from thence to Surat, where when arrived the doubling of the Line, Calentures, Scurvies, with a long train of diseases and Famine attend its transportation into our owne Countrey.

6. Whereas by expanding our selves to both sides and Seas of Virginia; our commerce to those noble Nations lies open in short and pleasant voyages to the encouragement, enriching and delight of the Seamen, and personal adventurers, who will share in the delicacies and profits of those Kingdoms, without participating in the miseries attending our present voyages thither. The Cargason being easily conveyed, by much the greater part of the way, through Navigable Rivers, and from the Eastern shore of Virginia in a month, or at the largest six weekes time into England.

And by this meanes the Hollander, Spanyard, and Portugall, who (by the

the supine negligence of this Nation, and its Merchant Adventurers) do with insufferable insolence Lord over us in both the Indies, when they shall to the unknitting of their joints perceive by your nursing care over the Infancy of your Colonies, that they are arrived under your auspice, to cover both the Seas with numerous Navies, and your Honours eye of indulgence and providence waking to their security, will be content laying aside all other passions to wave future affronts and injuries, or fall a deserved sacrifice to your offended justice.

And that this addresse may appear the more seasonable, I have (without any privacy or relation to his person) taken leave to intimate to your Honours, that there is a Gentleman whom the publick reputation and testimony of those who have the happines to know him render of excellent abilities, integrity, and a never shaken affection to your cause in all its crisis and dangers through which God with a clew of successe hath been your conduct) who hath already undertaken for the transportation of some men thither, and only waits for your Honours approbation and authority, the world taking notice, hopes and encouragement from thence, that as this Colony is like to be the eldest of your legitimate daughters in this nature, so by your indulgence she shall have the happynesse not to be the youngest in your affection.

May that God who hath begirt your house with a Grove of Laurell, continue the advance of those Victories till the whole Nation be crowned with Olives: May no sin, no ingratitude of ours divert his protecting hand from us, his assisting arme from you: May the generations to come in admiration of your vertue and gratitude for their by you-derived happines, make every heart your monument, wherein to embalm your memory whilst the Histories of all Nations and times enrich their Annals with your names as the most serious and triumphant part of all examples and transactions. And lastly may your owne thankfulness to him from whom these dispensations of mercy have distilled like the dew of Hermon upon your heads and borders, so continue in your bosoms, that when you shall be ripe for translation, he whose instruments you are, may welcom you with the approbation of, Well done good and faithfull servant,

Which are the undisguised wishes of
Your Honours most humble, obedient,
and faithful Servant. *Ed. Williams.*

The Sea of China and the Indies.

Sir Francis Drake

was on this sea and landed

An. 1577 in 37. deg. where hee tooke

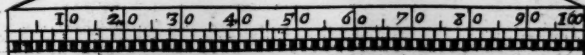
Possession in the name of Q.

Eliza: Calling it new Albion.

Whose happy shores, (in ten dayes march with 50. foote and 70. hor. men from the head
and through the rich adjacent Vallies beautified with as profitable rivers, which ne
Indian sea, may be discovered. to the exceeding benefit of Great Brittain, and joye of a



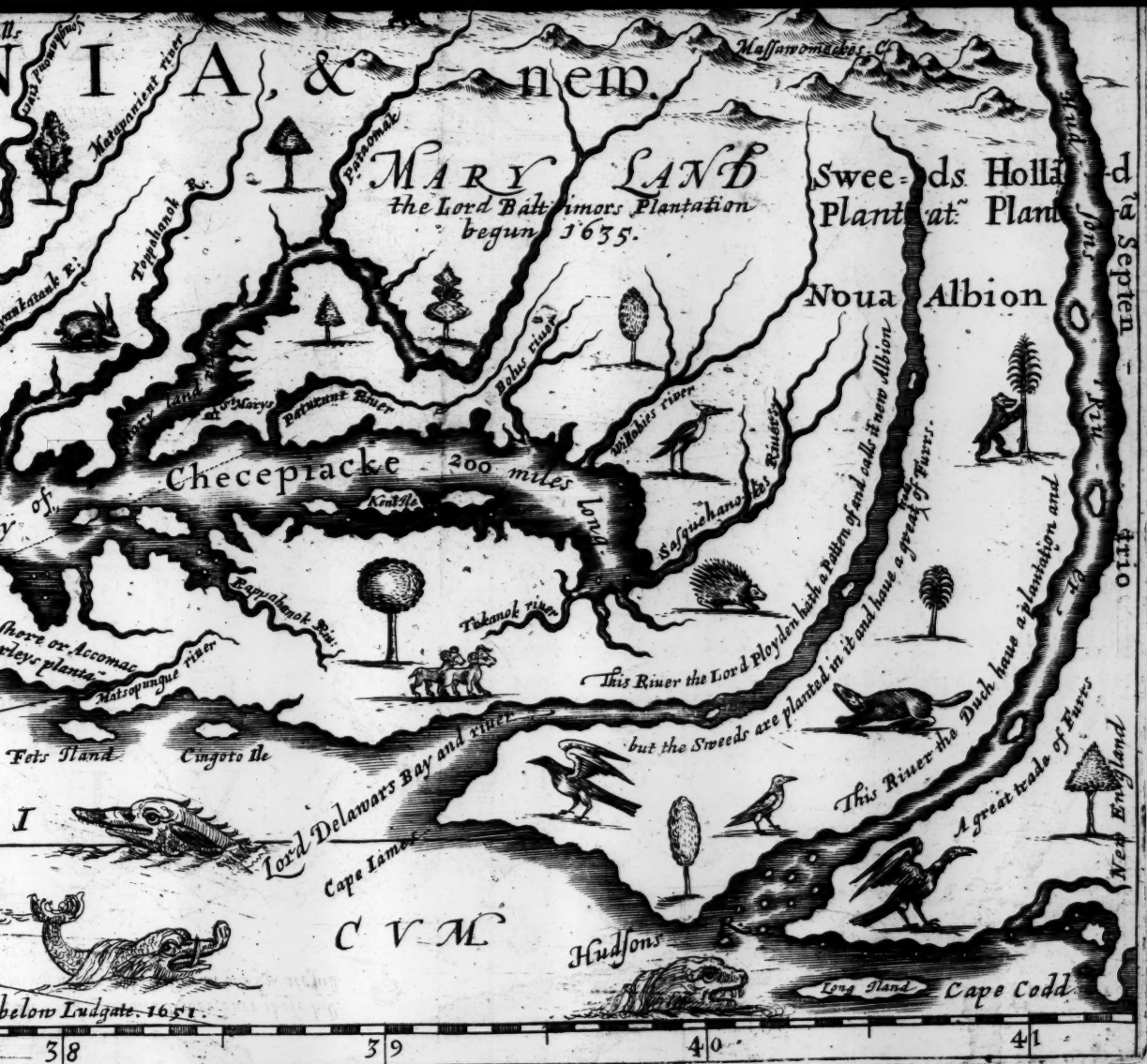
Scala Miliarum

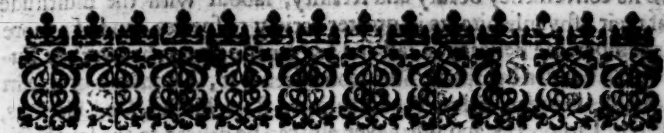


*A mapp of Virginia discovered to y^e Falls, and
in it's Latt: From 35. deg: & $\frac{1}{2}$ neer
Florida, to 41. deg: bounds of new England.*

*...the head of Inames River, over those hills
which necessarily must run into y^e peacefull
joye of all true English.*







**Virginia in Generall, but particularly
CAROLANA, which comprehends Roanoak,
and the Southerne parts of Virginia
richly valued.**



THE situation and Climate of *Virginia* is the Subject of every Map, to which I shall refer the curiosity of those who desire more particular information.

Yet to shew that Nature regards this Ornament of the new world with a more indulgent eye then she hath cast upon many other Countreys, whatever *China, Persia, Japan, Cyprus, Canay, Sicily, Greece, the South of Italy, Spaine,* and the opposite parts of *Africa*, to all which she is parallel, may boast of. will be produced in this happy Countrey. The same bouny of Summer, the same milde remission of Winter, with a more virgin and unexhausted foyle being materiall arguments to shew that modesty and truth receive no diminution by the comparison.

Nor is the present wildnesse of it without a particular beauty, being all over a naturall Grove of Oakes, Pines, Cedars, Cipresse, Mulberry, Chestnut, Laurell, Sassafras, Cherry, Plum trees, and Vines; all of so delectable an aspect, that the melanchollyest eye in the World cannot looke upon it without contentment, nor content himselfe without admiration. No shrubs or underwoods choake up your passage, and in its season your foot can hardly direct it selfe where it will not be died in the blood of large and delicious Strawberries: The Rivers which every way glide in deepe and Navigable Channells, betwixt the breasts of this uberous Countrey, and contribute

to its conveniency beauty and fertility, labour with the multitude of their fishy inhabitants in greater variety of species, and of a more incomparable delicacy in tast and sweetnesse then whatever the European Sea can boast of: Surgeon of ten feet, Drummes of sixe in length; Conger, Eeles, Trout, Salmon, Bret, Mullet, Cod, Herrings, Perch, Lampreyes; and what ever else can be desired to the satisfaction of the most voluptuous wishes.

Nor is the Land any lesse provided of native Flesh, Elkes bigger then Oxen, whose hide is admirable Buffe, flesh excellent, and may be made, if kept domesticke, as usefull for draught and carriage. as Oxen Deere in a numerous abundance, and delicate Venison, Raccoones, Hares, Conyes, Bevers, Squirrel, Beares, all of a delightfull nourishment for food. and their Furses rich, warme, and convenient for clothing and Merchandise.

That no part of this happy Country may bee ungratefull to the Industrious; The ayre it selfe is often clouded with flocks of Pigeons, Partridges, Blackbirds, Thrushes, Dottrels, Cranes, Hernees, Swans, Geese, Brants, Duckes, Widgeons, Oxyes, infinites of wilde Turkeyes, which have beene knowne to weigh fifty pound weight, ordinarily forty.

And the native Corne of the Country Maiz, is so gratefull to the Planter, that it returneth him his entrusted seed with the increase of 2 or 3 hundred interest, so easily planted, that one man in 48 hours may prepare as much ground, and set such a quantity of Corne, that he may be secure from want of Bread all the yeere following, though he should have never so large an appetite to consume it, and have nothing else to live upon. Nor is it above three, or at the most foure months intervall betwixt the time of planting and gathering: Planted in March, April, or May, it is ready for the Barne in June, July, and August; and of this by a provident management, you may have yeerely three or foure Harvests. The stalk bruised yields a juice as big as Rice, pleasant as Sugar, and the green Ears boyled in such juice is comparable in agreeablenesse to the palats to what ever our Pease, Sparagus, or Hartichoke, hath eyther for satisfaction or delicacy. Nor is the Corne difficult in preservation, for in six or seven yeares there is scarce any sensibility of its corruption.

But lest our palats should have so much of curiosity as to dislike what ever is not native to our owne Country, and what is justly esteemed

seemed more proper this happy soyle, though at the first too rich to receive it, after it hath contributed to your wealth by diminution of its owne richnesse, in three or foure crops of Rice, Flax, Indian Corne, Coleseed, or Rapeseed, will receive the English wheat with a gratefull retribution of thirty for one increase, every Acre sowed with wheat will produce six, seven, or eight Quarter of the graine intrusted. And though Mr. *Bullocke* be pleased to under-rate it halfe the crowne the bushell, which in the Canaries will yeeld ten and twelve shillings, and in Spaine eight, yet even in that proportion you are recompenced with six, seven, or eight pound the Acre, of which two men by a discreet division of their time, will plow, reape, and in at the least 60 Acres.

Which though it may appeare a matter of admiration, yet I shall easily make it apparant by the following Narration, in which such is the exactnesse of the Ayre in this Country, that you may have five successive Harvests of the same grain in different seasons. For though a man and a boy with much ease may plow an Acre every day, the ground being pliable of a rich blacke and tender mold, and no frosts or snowes, no usuall droughts or raints to hinder the going of the plow, yet I shall allow a month for the plowing of twelve Acres, and thus plowing in September, October, November, December, and January, you may have your severall Harvests in June, July, August, and September, which may easily bee inned by the same hands the labour not falling in a glut upon them, but the Corne ripening according to its severall seasons.

And thus by two mens labours onely you have a gratefull returne of at the least three hundred and sixty Quarters of Wheat, which will at that under rate formerly mentioned, viz. 2s. 6d. yeeld so many pounds sterling: Nor is there such difficulty in the threshing, as may be at first sight suspected, since it may easily be tread out with Oxen, as it is usuall in Italy and other Countries.

The first Wheat being reaped, if you desire a croppe of Barley, the same Land plowed in July, will returne its ripe increase in September, so that from one and the same piece of ground you may have the benefit of two different Harvests.

But the Rice (for production of which this Countrey is no lesse proper then those Lands which have the greatest reputation of fertility) sowed, yeelds a greater increase with the same labour 40 Acres

area of this plowed if valued but at 70. 6d. the Bushell, will yeeld 600l. all done by two men and a Teame of Oxen, who may by other labour in the intervall betwixt the committing the seed to ground, and its ripening, fall upon Cole-seed or Rape seed, infinitely rich Commodities with the same facility.

The objection, that the Countrey is overgrowne with Woods, and consequently not in many Yeares to bee penetrable for the Plough, carries a great feebleness with it. For there are an immense quantity of Indian fields cleared already to our hand by the Natives, which till wee grow over populous may every way be abundantly sufficient, but that the very clearing of ground carries an extraordinary benefit with it, I will make apparent by these following Reasons.

1. If wee consider the benefit of Pot-ashes growne from ten to fifty pound the Turne, within these twenty yeares, and in all probability likely to encrease by reason of interdicting Trade betwixt us and the Muscovite, from whence we used to supply our selves; We shall finde the employment of that very Staple will raise a considerable summe of Money; and no man so employed can (if industrious) make his labour lesse then one hundred pound, *per annum*: For if wee consider that those who labour about this in England give twelwe pence the bushell for Ashes, if wee consider to how many severall parts of the Countrey they are compelled to send man and horse before they can procure any quantity to fall to worke upon; if wee consider some of the thriftiest, and wise, and understanding men, sell Wood on purpose for this Commodity, and yet notwithstanding this Brigade of difficulties finde their Adventures and Labours answered with a large returne of profit, wee who have all these things, already at our owne doore without cost, may with a confidence grounded upon reason expect an advantage much greater, and a clearer profit.

Nor can wee admit in discretion, that a large quantity of those should not finde a speedy Market, since the decay of Tymber is a defect growne universall in Europe, and the Commodity such a necessary Staple, that no civill Nation can be conveniently without it.

Nor are Pipestaves and Clapboard a despicable commodity, of which one man may with ease make fifteene thousand yearly, which in the countrey it selfe are sold for 4l. in the *Canaries* for twenty

twenty pound the thousand, and by this means the labour of one man will yeeld him 60l. *per annum*, at the lowest Market. If all this be not sufficient to remove the incumbrance of Woods, the Saw mill may be taken into consideration; which is in every respect highly beneficiall by this Timber for building houses, and shipping may be more speedily prepared, and in greater quantity by the labour of two or three men, then by a hundred hands after the usuall manner of sawing.

The Plankes of Walnut-trees for Tables or Cupboards, Cedar and Cypress, for Chests, Cabinets, and the adorning magnificent buildings, thus prepared will be easily transported into England, and sold at a very considerable value.

But that in which there will be an extraordinary use of our Woods is the Iron mills, which if once erected will be an undecaying Staple; and of this forty servants will by their labour raise to the Adventurer foure thousand pound yearly: Which may easily be apprehended if wee consider the deereneffe of Wood in England, where notwithstanding this great clog of difficulty, the Master of the Mill gaines so much yearly, that he cannot but reckon himselfe a provident Saver.

Neither does *Virginia* yeeld to any other Province whatsoever in excellency and plenty of this Oare: And I cannot promise to my selfe any other then extraordinary successe and gaine, if this noble and usefull Staple be but vigourously followed.

And indeed it had long ere this growne to a full perfection, if the treachery of the Indians had not crushed it in the beginning, and the backwardnesse of the *Virginia* Merchants to reerect it, hindred that Countrey from the benefit arising from that universall Staple.

But to shew something further, what use may be made of Woods besides the forementioned Wallnut Oyle; at the least a fourth part of the Trees in *Virginia* being of that *species*, is an excellent Staple, and very gainefull to the industrious Labourer.

Nor is it a contemptible profit that may be made of Woods, if by boaring holes in divers trees, of whose vertues wee are yet ignorant, and collecting the juce thereof; a scrutiny be made which are fit for Medicinall Liquor and Balsomes; which for Gummes, Perfumes, and Dyes, and heere I may justly take occasion to complaine of our owne sloth and indulgence, if compared to the labo-

rious Spanyard, who by this very practice have found out many excellent Druggs, Paints, and Colours, meerely by bruizing and grinding Woods, probably convenient for such experiments: which if boyled; and a white peece of cloth steeped in the boyling liquor, will by its tincture discover what colour it is capable to give, and if many should faile in the tryall, yet does it not fall under the probability, but that divers noble and usefull mysteries of Nature may be discovered by some such perforations and scrutinies. Nor are the many Berries commonly of an excellent colour and lustre unfit for such experiments; since the labour is little or nothing, and the issue if succesfull of remarkable advantage. And this the Spanyard hath experimented to the encrease of gaine and reputation; and above this is so signally curious and industrious, that he hath discovered many rare and delightfull colours, not onely by the meanes before mentioned, but by bruizing and boyling divers Fish-shells, the brightnesse and variety of colours giving him a just reason to pursue such curious examens.

The French relations of their Voyages to *Canada*, tell us, that the Indians and themselves falling into a contagious disease, of which Physicians could give no Reason or Remedy, they were all in a short space restored to their health meerely by drinking water, in which Saxifrage was infused and boyld, which was then discovered to them by the Natives, and wee justly entertaine beliefe that many excellent Medicines either for conservation of Nature in her vigour or restauration in her decadence may be communicated unto us, if projection of this stampe be so much encouraged by hopes of reward or honour, as to be put in practice.

By this Improvement of Woods, the Ground comming to bee cleared, wee have a soile fit to produce what ever is excellent in Nature, the Vine and Olive which Naturally sympathize together, will thrive beyond beliefe; nor need it be any interruption to Tillage, since the Vintage and Harvest alwayes fall but in different Reasons.

That wild Vines runne naturally over *Virginia*, ocular experience declares who delighting in the Neighbourhood of their beloved Mulberry-trees inseparable associates over all that Countrey, and of which in this their wildnesse Wines have beene made, of these Wines if transplanted and cultivated, there can be made no doubt but a Rich and Generous Wine would be produced. But if

(7)
if wee let the Greeke Cyprian Candian or Calabrian Grape, those
Countrie lying parallell with this, there neede not be made the
smallest question, but it would be a Staple which would enrich this
Countrey to the envy of France and Spaine, and furnish the Nor-
therne parts of Europe, and China it selfe where they plant it not,
(of which more heereafter) with the Noblest Wine in the World,
and at no excessive prices.

And from this Staple 'tis not unworthy of our most serious con-
sideration, what an occasion of wealth would flow upon this Nati-
on: Virginia when well peopled being able to match Spaine
in that his Sovereigne Revenue, and the State by addition to their
Customes for exportation thereof according to the mode of France
and Spaine, would in no short time be sensible of this most inesti-
mable benefit: To which if wee joyne the Profits of our Olives,
wee may (Gods favourable hand blessing our industry) be the hap-
piest Nation in Europe.

Nor need wee be at that charge for Caske under which Spaine
labours, where ever wee cast our eyes upon this Fortunate Countrey
wee may finde Timber proper for it.

For the advance of which noble Staple, I should propose that
the Greeke, and other Rich Vines, being procured from the
Countries to which they are geniall, every Planter in that Coun-
trey might be enjoyned to keepe a constant Nursery, to the end
when the ground is cleared, that they may be fit for removal, and the
Vineyard speedily planted.

Further that some Greeke, and other Vignerons might be hired
out of those Countries to instruct us in the labour, and lest their en-
vy, pride, or jealousy of being layd aside when their mysterie is
discovered, may make them too reserved in communicating their
knowledge, they may be assured, besides the continuance of their
Pension of a share in the profits of every mans Vintage, which will
the more easily perswade them to be liberall and faithfull in their
instructions, since the publick advance of this designe cannot mis-
carry without a sensible losse to their particular interest.

That before their going over a generall consultation may be had
which them what ground is proper, what season fit, what pre-
vention of casualties by bleeding or splitting, what way to pro-
serve or restore Wine when vesicled, which *Art of Wine* is fittest
for

for transportation over, or retention in the Countrey, which for duration, which for present spending: It being in experience manifest that some Wines refine themselves by purge upon the Sea, others by the same meanes suffer an evaporation of their Spirits, joyned to this that some Wines collect strength and richnesse, others contract feeblenesse and sowernesse by seniority.

These consultations drawne to a head by some able person, and published to be sent over in severall Copies to Virginia, by the inspection of which people might arrive at such competent knowledge in the Mystery, that the reservation or jealousies of those Vignerons, could not but be presently perceived and prevented.

But from hence no occasion should bee derived to breake or fall short of any contract made with those Vignerons, who are to be exactly dealt with in performance of Articles, every way made good unto them, with all just respects to win upon them, and the non-performance of this hath beene the originall cause why Virginia at this day doeth not abound with that excellent commodity. Those contracted with as hired servants for that employment, by what miscarriage I know not, having promise broken with them, and compelled to labour in the quality of Slaves, could not but expresse their resentment of it, and had a good colour of justice to conceale their knowledge, in recompence of the hard measure offered them, which occasioned the laying aside of that noble Staple, the diligent prosecution whereof, had by this time brought Virginia to an absolute perfection in it, and to a great degree of happinesse and wealth which would attend it.

And had this beene as happily followed as it was prudently intended. that excellent Country had not hung downe its desolate head in so languishing a condition as the disrepect cast upon her, till of late yeares had reduced her to. Nor had the poore Planter (who usually spends all the profits of his labour in forraigne Wines) been impoverished by the want of it: but with delight might have shaded himselfe under his vine, reaped the benefit of it in Autumne, and buried all the memory and sense of his past labours in a cheerefull rejoycing by his owne harth with the issue of his owne vineyard.

And from hence might Barbadoes, St. Christophers, and all our Islands in the Indies, have richer, better, and by much cheaper, wines transported to them from a place much neerer in distance then Spain

or

or the Canaries) and which doubles the benefit such intercourse together, would draw them to an association in power as well as communication of Staples.

Were this brought to a just perfection no other Nation could upon a quarrell betwixt Us, and Spaine, and France, reape a benefit by selling us their Wine at a third Market. And what wee vend now for it (that being made Native to us) might be returned in Bullion, to the apparent enriching of the Common-wealth; and the impoverishing of our Enemies, or at the least Friends deservedly suspected.

All Authours of Agriculture unanimously consent that neither Arable Pasture, Meadow, or any other Grounds are so benigne genuine, or proper for planting Vines in, as those cleared Lands are, wherein not Shrubs, but Tall Trees were standing. And wee must want a parallell in any part of the World to compare with Virginia for tall and goodly Timber-trees cleared of all under Woods, to which when cleared your Vines may be removed (the very removeall of them, as indeed of all other, giving an addition to their perfection (the excellency of transplantation being more particularly insisted upon heereafter.) But in the clearing of these woods it will be a saving of labour, and a delight to the Vine, besides other profits following to leave the Mulberry trees standing there, being such a happy correspondence together such a mutuall love ingrafted in them by Nature, that wee well may conclude with this Axiome, that the same Nature joynes all her excellencies together by an association of sympathies.

Nor does she wave that her happy order in Incomparable *Virginia*, where the soile and climate that fits the one, is equally amiable to the other, their loves and hates happily according, what the one shunnes, the other flies from, what the one affects, challenges the others embraces, and were not this soile and climate most geniall and proper Nature her selfe (whose productions are never uselesse) would never have crowned the Virgin-Brow of this unexampled Countrey, with such a universall plenty of them, or with such a voluntary League have united them every where together.

Virginia

VIRGINIA compared to PERSIA.

BUT to illustrate this with another argument : Let us compare this felicity-teeming *Virginia*, as it is situated from 31 degrees of Latitude to 40. with other Countreys, seated in the same degrees which opens us a method of observing what Commodities Nations so planted abound with, which found wee shall discover in this excellent Virgin a disposition ingrafted by Nature to be Mother of all those excellencies, and to be equall (if not superior) as well in all their noble Staples, as in nearness to their particular enricher the perpetually auspicious Sunne. And this to whom *Virginia* owes the publication and portraict of her incomparable beauty; Mr. *Harriot* the noble Mathematician delivers us by a happy instance in finding out for her a noble Sister of the same Latitude, the most glorious *Persia*, innobled as much by this comparison as in her Empire. And those who have travelled and viewed *Persia*, unanimously relate wonders of her admirable fertility in all sorts of Graine and Fruits, with an unexpressible abundance of Silke and Wines : In which this her rich-bosomed Sister claimes an equality in her plenty of Mulberries, Silke, and Gums, Vines, Maiz, Rice, and all sorts of Graine : onely as a fuller-dowryed Sister she merits a priority in fertility, pleasure, health, and temperature, a Virgin Countrey, so preserved by Nature out of a desire to show mankind fallen into the Old age of the Creation, what a brow of fertility and beauty she was adorned with when the World was vigorous and youthfull, and she her selfe was unwounded with the Plough-shares, and unweakened by her numerous future teemings.

Another eye-witnesse of this Victorious Empire, delivers to memory that *Covanan* in a Province of that Countrey, is so incomparably fruitfull, that Deaths are never knowne, nor Famine ever suspected in it, that in one onely City called Ery, there is such an inestimable store of Silke, that there might be bought in one day in that City as much Silke as will lode three thousand Camells. And he is little conversant with experience or History, who is ignorant that the abundance of Silke Native to that Countrey and Climate,

is

is almost the Sole Staple of that mighty Empire, by which never to be exhausted Treasure of Silkes the finewes and vitalls of the Persian Empire, the Sophy to the generall good of Christendome, keepes both the hornes of the Ottoman Moone from compleating their ambitious Circle. And if the English East-India Company of Merchants were not wrong-byassed by the factions and sinister ambition of some men in Authority amongst them, a great part of that wealthy Staple might be transported into England, and by that meanes dispersed over all parts of Europe to the enriching and honour of this Nation.

The digression upon this Parallell hath diverted me from amplification upon the publick benefit, which may devolve into this republick by the Olive, which being genuine to the Vine, will by a happy consent of nature indisputably flourish in a vast abundance, and by a transportation into the warmer Regions: where the heate or scarcity of Cattle causeth a like indigence of Butter, will be a Staple of inestimable value, and of no smaller contentment to our owne shipping, into those provinces neere the Equinox, or in those voyages where the doubling of the Line either putrifies, or makes it of a taste little pleasing or agreeable to the palate.

VIRGINIA compared to CHINA.

BUT to leave Persia and descend to a more wealthy and powerful Parallell, the richest and mightiest Empire in the World, lies in the same latitude and climate with our fortunate Virginia: namely China, divided from it only by the Southsea, and (which will bee a part of another discourse) not of any long distance from it, agreeing with it in multitude of Staples. China is stored with an infinite number of Mulberry trees to feede Silkwormes with, and vends silke in such a vast proportion, that in one onely City *Sampo*, which some call *Siampo*, the Portugeses, have with no small admiration, observed that one Hundred and sixty thousand pound weight of silke hath beene caried out in one Shippe in the onely space of three Moneths.

Into *Camballe* the chiefe City of Tartary (as Authors of great

repute and credit, and one who was personally there, reports) there comes every day from China, a thousand waggons laden with silke. Nor is China lesse happy in its multitude of navigable Rivers, in its wonderfull fertility of all sorts of graine, Maiz, Rice, &c. of which it receiveth every yeere three or foure most plentifull Harvests, Rivers stored with an incredible quantity of Fish and Fowle, enriched and ennobled, with numerous Mines of Gold, Silver, Brasse, Iron, and other Mettalls, Quicksilver, Nitre, Allum, Precious stones, Pearles, Muske, Cotton, Sugars, Rubarb, China Root, vast proportions of Flax, Fures extraordinary rich. To this happinesse of soile and situation, they associate an equall felicity of parts and industry, by which they pretermitt not one span of ground which they assign not to particular and profitable uses, and by an ingenious division of the ground according to the quality of the soyle, designe the drier part for wheat and barley, That which is more visited with an improving moystare, to Rice and Sugar; Ascents and Mountaines to groves of Pines and Chestnuts, betweene which are planted Maiz, Peas, and all kinde of Pulse. In other proper places are Mulberry Groves, Gardens, Orchards, Flax, and in a word no spot of ground misemployed from its proper advantage.

And that Virginia is parallell in necesse of Staples, as well as neighbourhood to the sunne, to that celebrated Empire, what multitudes of Fish to satisie the most voluptuous of wishes, can China glory in which Virginia may not in justice boast of? What Fowles can she make ostentation of, in which Virginia can be esteemed inferior? Can China, insolent with her prosperity, solely lay claime to a more singular honour for her affluence in Maiz and other grain, for the maintenance and luxury of her plenty-wanton Inhabitants, without an open injury to her equall, to her Mayden sister, to our incomparable Virginia? Are her Mulberries springing from a voluntary bounty of Nature lesse numerous or usefull then those to which China hath added all the assistance which could be expected from advantages of transplantation, or an industrious people? If China will descend to particulars, to compare Quantity and Quality of Fish and Fowle, Let her shew us Turkeys of 10 pound weight, Let her instance an example of one hundred and fifty Fowle, to reward the labour of three charges of shot and powder, Let her publish a president so worthy of admiration (and which will not admit beliefe

believe in those bosomes where the eye cannot be witness of the action, of five thousand fish taken at one draught neere Cape *Charles*, at the entry into Chesapeake Bay, and which swells the wonder greater, not one fish under the measure of two feet in length. What Fleets come yeerely upon the coasts of New found Land, and New England, for Fish, with an incredible returne? Yet tis a most assured truth, that if they would make experiment upon the South of Cape Cod, and from thence to the coast of this happy Countrey, they would find Fish of a greater delicacy, and as full handed plenty, which though Foraigners know not, yet if our owne Planters would make use of it, would yield them a Revenue which cannot admit of any diminution, whilst there are Ebbes and Flouds, Rivers feed and receive the Ocean, or Nature sayles in (the Elementall Originall of all things) Waters.

There wants nothing but industrious spirits and encouragement, to make a rich Staple of this commodity; and would the Virginians but make Salt pits, in which they have a greater convenience of Tides (that part of the Universe by reason of a full influence of the Moone upon the almost limitless Atlantick causing the most spacious Fluxes and Refluxes, that any shore of the other divisions in the World is sensible of) to leave their pits full of Salt-water, and more friendly and warme Sunbeames to concoct it into Salt, then Rochel, or any parts of Europe. Yet notwithstanding these advantages which prefer Virginia before Rochel, the French King rayles a large proportion of his Revenues out of that Staple yearly, with which he supplyes a great part of Christendome.

And if from this Staple the miserable French can procure a subsistence, some of them a comfortable livelyhood, notwithstanding all the private oppressions of their grinding Landlords, the Publick Tallies, Subsidies, Aides, Imposts, and other hard Tides of authorized Rapine. What shall wee imagine the freeborne English in a Countrey where he owes no Rent to any but to God and Nature, where he has Land to satishie his desires in its extent; his wishes in its fertility, where free-quarter is a word onely understood by Report, may expect of profit and content both in this Staple of Salt, in that of Wines made in those Countries, where either the Spanish insulence and exactions, the French extortions, or the Turkish Imperiall Robberies, though in the highest degree of exorbitance,

are not of force so to discourage the Inhabitants from attendance upon the Vineyard, which notwithstanding all those Horse-leaches of Imposition, returns them such a profit as make them keepe a middle path betweene the ascent of Riches, and precipice of Poverty.

Not would it be such a long intervall (Salt being first made) betwixt the undertaking of this Fishing, and the bringing it to perfection; for if every servant were enjoyned to practise Rowing, to be taught to handle Sailes, and trimme a Vessell, a worke easily practised, and suddainely learned, the pleasantness of Weather in fishing season, the delicacy of the Fish, of which they usually feede themselves with the best, the encouragement of some share in the profit, and their understanding what their owne benefit may bee when their freedome gives them an equality, will make them willing and able Fisher-men and Seamen.

To adde further to this, if wee consider the abundance, largeness, and peculiar excellency of the Sturgeon in that Countrey, it will not fall into the least of scruples, but that one *species* will bee of an invaluable profit to the buyer, or if wee repeate to our thoughts the singular plenty of Herrings and Mackarell, in goodness and greatness much exceeding what ever of that kinde these our Seas produce, a very ordiary understanding may at the first inspection perceive that it will be no great difficulty to out-labour and out-vye the Hollander in that his almost onely Staple: Which wee may also sell at a cheaper Market then in common estimation; if wee revolve the Salt to be our owne, which they buy from France, or fetch from the Isle of May, and that the very freight of Passengers (of which allured by this improvement, and the publick approbation, there will be constant multitudes) in our owne Shippes will at the least defray 3 fourths of the charges.

I should not unwillingly heare (though I dispaire ever to know it for a certainty) that *China* did exceede us in fishing; for were it granted, wee should not imagine those watry Inhabitants so circumscribed and limited to one part of the Ocean especially the same Climate and Latitude, inviting them as not to visit our opposite shore of Southwest *Virginia* in as great variety and plenty.

And to the more curious and able Persons I shall offer what singular object it were of variety and plenty, if they would take the advantage

vantage of some tides and seasons, when the resort of fish is greatest to stoppe the Returne of them out of some Creeke perpetually flowing with Salt by Slices, or such other invention: Heere would those great ones generate and produce till even they laboured with their owne Multitude, if permitted to increase two or three yeares, who might with very small charge be maintained, and yearly render to the proprietor an Ocean of Fish in a narrow confine of Water.

Nor were it unworthy the labour to make an experiment whether the Sturgion himselfe might not receive a kinde of Domestication in that narrow circumscription, especially if wee let it descend into our thoughts, that (by small perforations in the Sluces he perpetually admits a Renovation and change of salt Water) he may receive the same benefit of Liberty, namely variety of Water, which he delights in when unconfined, and admitting the Originall Breeder not to thrive well by such imprisoning, yet Customes ascending as high as Nature in the Breed, would make that Familiar to them, which peradventure might have been offensive to the first Spawner, and should they delight (as in some seasons of the yeare Fishes doe vary their Resorts) at any time in fresh water; A large Pond digged neare having either Springs to feede it, or Raines to fill it, might by communication of a Sluce receive both them and Salmon, when they seeke after the Freshes.

And that Fishes may be unwilded, and become Domestick, History will sufficiently informe us, wherein are delivered Reports of some who growne more particularly intelligent, were distinguished by names, and understood themselves so called: and *Martiall* in one of his Epigrams to *Cesar*, (I meane *Domitian*) tells the Prince speaking of Fishes so instructed, *Quid quod nomen habent & ad Magistri Nomen quisq; sui venit citatus?* And further, *Manius Lampis*, a thing, which though a Poet, and consequently bold, even to untruths, yet he durst never have obtruded upon *Cesar*, whom himselfe makes a party in the experiment.

And to adde something to what hath formerly beene delivered of Balsomes and Colours, why from the Livers and most unctuous parts of those more delicate Fishes, may not curiosity finde a means to extract an Oyle, which (if it be not Medicinall, though I am inclined by severall Reasons to believe the affirmative) may notwithstanding

standing artificially distilled after its first extraction prove a delicacy for the Tables of Princes and Great Ones, especially for Sauces, and other Confections which Luxury hath found out for the irritation of dull and retreating appetites. But I cannot believe it to be deprived of its particular virtue in Physicall operations, and the industrious conclusions of our Ancestors have by such probations discovered many rich Mysteries of Nature; whilst wee either glutted with our owne plenty of Réceipts, or out of a too fond a Reverence wee pay to antiquity acquiesce in their prescriptions, as in the *plus ultra*, the *Herculis* Pillars of Wisedome, beyond which there were no passage, or else feare every innovation brings inconveniences in his Train, which opinion if it had possessed those our Ancestors, the World had continued in ignorance, and must for ever have layne sick of an incurable folly in the Fooles-Hospitalls.

For what concerne the Flax of *China*, that wee may not lose the smallest circumstance of Parallell with *Virginia*, Nature her selfe hath enriched this her bosome Favourite with a voluntary plant. which by art, industry, and transplantation may be multiplied and improved to a degree of as plentifull, but more excellent Nature: Which because of its accession to the quality of Silke, wee entitle Silke Grass: Of this Queene *Elizabeth* had a substantiall and rich peece of Grograine made and presented to Her. Of this Mr. *Porey* in his discovery of the great River Chamonoak, to the South of *James* River, delivers a Relation of infinite Quantity, covering the Surface of a Vast Forest of Pine-trees, being 60. miles in length.

It had beene wished that the injunction given to every Planter to set so many thousand Plants of this kinde had beene effectually prosecuted: The intermission whereof hath beene a prejudice not easily imaginable: Nor is it yet too late to effect it, and in all probability by transplantation it may thrive beyond comparison larger, and the skinne of it growne more tender and delicate, may arrive to some equality with the labour of the Silke-worme, if it be managed by such Rules of Nature best sute with its production.

For Hempe there is a naturall kinde of Hempe, a *species* of Flagg in that Countrey, from which being boyled you may strippe a long and fine skinne, not onely proper for Cordage, but the finer sort singularly usefull for Linnen; of this two hundred weight hath been

beeene sent into England, of which hath beeene made excellent Cordage, and very good Linnen. This, by observation of the soile it growes in, and transplanted into Grounds of like, but richer property, would together with the Silke-grasse make a Staple of admirable Returne and Profit; Provided every Planter had an injunction for this, as well as the former to sow or set a convenient proportion, to which his owne profit (quickned with the imposition of a mulct in case of neglect) would easily invite him. And by this meanes would *Virginia* not onely furnish her owne people, but supply other Nations with Stuffs and Linnen.

To the Brasse of *China*, wee shall oppose the *Virginian* Copper (or Gold, for yet it is doubtfull) for by a concurrent Relation of all the Indians, justified to severall English of Quality, particularly to the Earle of *Southampton*, in Mr. *Poyes* Narrative, to Sir *William Berkely*, all seconding Mr. *Heriots* Report, that within ten dayes West toward the setting of the Sunne, the Natives of that Countrey gathered a kinde of a Red Sand falling with a streame issuing from a Mountaine, which being washed in a sieve, and set upon the fire speedily, melts and becomes some Copper, which they shew us, but as they say much softer. We shall only suppose it to be Copper, contrary to the opinion of divers knowing men, who apprehend it for a Richer Metall; but melting with such ease two parts in five turning to a Solid Metall, the other three parts being peradventure not any thing of the Ore, but onely such Rubbidge, as joyned to the Ore in rouling, and this falling meerely from the superficies of the Mountaine, yet a Rich Copper; what eye enlightened with the smallest beame of Reason, will not conclude it for an extraordinary accession of Wealth to this Countrey? and why may not the intralls of this Minerall be Gold, since the skinne and crust of it is Copper? Nature her selfe oftentimes dealing after the mode of divers great men, delighting to lay an unregarded outside over her Richest Linings.

To proceed in continuation of our comparison with *China*, if it abound more in visible Silver (of which with our abundance of Scaples may quickly put us into a condition of entering into completion with) yet cannot *Virginia* in all probability be destitute of that Metall: For besides divers conjectures grounded upon naturall circumstances: Mr. *Gage* in his Relation of the Indies, assures

na that the Spanyards have found out a rich Silver Mine on the back side of Florida Westward . in 34 degrees of Latitude, and the farther they extend their search Northward , the more Rich and Pure the Mines discovered improve themselves.

Not shall wee plead inferiority in Pearles with China or Persia, since Mr. *Heriot* assures us of a large quantity of Pearles found amongst the Natives, spoyled by their ignorance in boring of them, and defacing their orientall lustre, by exposing them to the fire. These were found amongst the Indians at Roanoak, and the Relations of the Natives on all hands unanimously concur that the South and West of this opulent Countrey was stored with such abundance and variety, that the Indians used to make and adorne Babies with them: And one of the English had collected a Bracelet of very orientall Pearle, to the number of five thousand, which were all lost in the Returne to England.

If China suppose a merit of precedency in Muske, Virginia may justly oppose them with her Musk Rat, or Muscassius, which in all probability cannot but be the same; for it is a tradition received into the Number of truths, that the Confection of their Muske in that Countrey is bruizing and burying a certaine Creature to putrefaction, of which this Odour is effected, and it is very open to conjecture that this Musk-Rat or Muscassius, whose flesh and skinne are extraordinary redolent and durant, and of which there is an infinite plenty, by such order may be brought to the same perfection. Neither is it so improbable that this Odour should proceed from putrefaction, which is naturally an abhorrence to the Nostrill: for if you apply too neare to the substance of the Muske, there is an occult subtilency of such a putrefactive originall. Neither are all excretions of Nature in themselves offensive to the sense of smelling, for the Fluxe of the Civet-Cat is accounted amongst our most soveraigne Pertumes: And this experimented will be a Staple of noble use, and no lesse benefit.

Not shall wee yeeld the Laurell of preeminence in Richnesse of Furr to China, if the Furr of Beavers, Otters, Martines, and above all Black Foxes (which are upon some part of this Continent) may pretend any title to Richnesse: And yet have wee beene hitherto so supinely negligent to permit the Dutch and the French to carry away most of this pretious Commodity, to trade in our Ri-

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vers, under-sell us, and which discovers either an implacable malice or insatiable avarice, trade with those Indians (of whom wee have no reason to nourish any great confidence) for Muskets and Powder.

To conclude, what ever else China may presume to boast of: Whether Nitre, Alum, Quicksilver, Rhubarb, and China Root, of which some wee have already discovered: If wee consider the parallell in Latitude, the equality of temperate Climate, the parity in soile, and its fertility, the similitude in brave Navigable Rivers, the unanimous congruity and consent in divers knowne Commodities, wee shall have an ample basis to ground conjectures upon; that whatever singularity of Nature that Nation may imagine her selfe Victorious over others: will be found equall in this Garden of the World, this zealous Rivall of China, Virginia. And the Chineses may with as great justice deny the Europeans the benefit of both eyes, as boast that they precede in any thing except Antiquity of habitation, and a long experienced industry, this great Luminary of the new World Virginia.

What ever other commodities, the Novelty of inhabiting this amorous Virgin hath made it appeare defective in: as Sugar, Indigo, Cotton, Ginger, and other advantageous Staples, wee shall appeale to all who have seene this unexampled Countrey; (we meane Roanoke, and the more Southerne parts, and those Countries towards the fertile Mangoack) whether it be guilty of any contrariety, discomfort, or extremity which might hinder their production. The Sunne, which in other Countreys makes his visite in Flames and Droughts, heere casts his auspicious Beantes, and by an innocent and complementall warmth, courts the bosome of this his particular favourite, hastening and disposing its wombe for ripe productions, which salute him in an absolute perfection. Winter Snowes, Frosts, and other excesses, are heere only remembered, never known. The purling Springs and wanton Rivers every where kissing the happy soyle into a perpetuall verdure, into an unwearied fertility: no obstructions in your expectations, attempt and hope them, prosecute and enjoy them.

Nor have we in design to lay any imputation upon the Barbadoes, which already aboundeth to admiration, with the Staples last mentioned, yet it will become our charity to wish the Countrey as health-

full, as it is fruitfull: that it may answer the expectation and merit of its most industrious and publicke spirited Planters, who have given a brave example to all, by the effects of their industry and unwearied constancy. From a thing almost lost to memory, (at the least to reputation) they have rayed the honour of that Island, to be a subject of admiration for wealth and Staple, and that so little a circumference of Ground should be able to vent the value of two hundred and fifty thousand pound yeerely, as some Merchants have maintayned, not only addes to the weight and measure of their just estimation, but increases the favourable wishes of all lovers of industry, that they had a larger proportion of ground to improve upon.

And if an invincible sloth doth not possesse us in Virginia, (wee meane the South) why should not wee raise an equall or greater profit upon as fertile and convenient a soile? especially if we consider the populoufnesse of the place, has so rayed the price of Land there, which we have heere gratis, where number of inhabitants doe so little rake from our abundance, that they adde to our wealth, security and plenty, and the sole meanes to increase and improve upon Staples.

We have made it apparant that what ever China hath of Staple or delicacy, is produced or producible in this above-example Virgin. But to shew that even China her selfe must in some things give place to this more happy Mayden, *Terra sigillata*, or *Lemnia*, (as peculiar an income to the Grand Signiors Treasury, as that of Salt is to the French Kings) and of which China can no way boast, is native to this Country; Vines are eyther not naturall, neglected, or not understood by the Chineses, but in this incomparable soyle the Grape presents it selfe every where to your delighted prospect. And what shadow can there be of scruple that Wines well cultivated, and issuing from a rich Grape, will not be as commodious a Staple to that voluptuous and gluttonous Nation, who wanton away their wealth in banquets, as the Wines of France and Spain are to the more Northern and lesse abstemious Nations of Europe?

There need no objection be made against this Staple: for the Southwest part of Virginia being once discovered, the Sea laid open and that passage compleat in all its numbers, the pleasure of the commerce, the richnesse of returns, and the extraordinary quicknes of the profit, will invite so many to come over and plant that commodious

modious quarter of Virginia, that as we shall never labour with too numerous a multitude of inhabitants, so we shall not have any great occasion to complaine of the paucity of Planters.

Nor is Tobacco in those Indian seas (especially cured as in Virginia, and of that strength and excellency) a commodity of inconsiderable commerce, particularly if wee call to minde what gayne there is by the exchange for Indian commodities, so that any ordinary understanding may comprehend that although Tobacco should yeeld but three pence the pound in India, yet by way of barter with those Nations where the returne quadruples the value in England, the gaynes gotten by it might be very considerable.

But if we may beleieve Printed Relations (and the person delivering it so cleerly, is, in my opinion, worthy of all credit) Tobacco from Surat to Moco yeeld ten for one profit, returned in Eastridge feathers to England, you have six to one profit; but this is for those Planters who are so infected with that disease of the Countrey, that they cannot admit of any other Staple, though more gainfull and lesse laborious. Yet is not Tobacco without its vertues: for the Spaniard hath found out, besides the use of it in smoke, (or the smokey use) that the juice thereof (when Greene) applyed to any wound cut, sore, and without any distinction, whether Greene, festered, or cankered, will heale it speedily, and almost miraculously; the leafe bruised or stamped, and applied to any bite or sting of a venomous quality, to any wound made by a poysoned arrow, the green leafe heated in hot ashes, and layd upon any part of the body afflicted with aches, will worke effects answerable to the most powerfull operations of Nature.

*The Benefit and part of the Silke-worme
mystery created of.*

BUT to show to the World that wee may equall the best of the Western Kingdomes in this noble mystery of Nature the Silke-worme: That France and Italy are much below this Mignonne of Glory and Profit, the universally advantageous Virginia, wee shall upon these infallible demonstrations of Nature, make evident, ha-

ving the clew of truth, reason, and modesty to direct him. It will not be denied by any, whose forehead is not too brzen, that no Countrey is so proper for adventitions as its owne Native Commodities, the seeds of things suffer a deterioration by changing the propriety of that soile which was geniall to them; and the exact order of Nature suffers a diminution, if wee imagine any other Climate or Region more proper for the perfection of anything, then where it is originally produced.

Tellier affirms that this mystery of the Silke-worm hath not been experimented in Europe above a thousand yeares, being transmitted to our Climate out of the Asiatick World, in so much that Italy hath not bene above 200 yeares enriched with this industrious Creature, France received it from Italy, and it is observed, that the warmer the Region, by so much larger and stronger increase and texture receive they from the labour of this admirable and naturall Weaver. France being of a colder temper then Italy, their Wormes are weaker, in the more Northerne part of that Kingdome from one ounce of seed they profit five or sixe pound of Silke increase, worth at the least 20s. per pound, in Languedock, and the warmer Provinces the same quantity is increased to 7. 8, or 9. But in Brescia; of Calabria seede, they use usually to make eleven or twelve pound of Silke from the same originall proportion.

The poore people in both those Kingdomes buy their Mulberry leaves to feede this profitable and industrious Spinner, and the very charge of those leaves amounts to a full halfe of all other their expences.

The Nobility of Italy and France (the Grand Duke of Tuscany himselfe, descending into a part of this profit) make up a considerable part of their Revenue from their Trees, the Leaves of every one being valued according to their goodnesse and quality, from five shillings to twenty and upwards, so that divers make an income of three, four, five, sometimes a thousand pound, from the sole profit of their Mulberry trees.

The Grand Duke from the sale of his rayes, in some of his annis, of sixty thousand Ducats.

Yet divers Gentlemen in Italy make a larger increase of profit, by setting out their Mulberry trees to necessitous people, for the sake the gain arising from the worms, so that those people contribute their

their seed; employ their labour; and are at all expences in bringing the silke to perfection; yet notwithstanding when completed, the Gentleman who sets out his Trees, divides the moyety of the entire profit, for the hire of his Leaves only; yet are these people, maugre this difficulty, comfortable gayners.

And the same *Tellier* is bold to affirme, that *non obstante* the disagreeableness of the Countrey to that worrne, in the Kingdome of France from the sole revenue now of Silke, arises a greater intrado then from their Corne, Oyle and Woad put together, which grow in that Kingdome in vast proportions. And another French Author affirmeth, that the benefit of the Silke-worme, (of which France hath had no triall till within these fifty yeeres) ariseth to four Millions *per annum*, sterling, and this he pretends to have all circumstances of truth and certainty, drawne from an exact computation to confirme it.

If France (an almost improper Countrey for this improvement) can raise within the verge of fifty yeeres, so large and numerous a revenue, what shall we imagine Italy (a warmer Region, and by much more convenient, although not altogether Native, for this enriching creature) may meerely upon this Staple returne in their Treasury, having besides the advantage of Climate, a hundred and fifty yeeres precedency in the mystery, and their seed more strong, better fed, and lesse subject to diseases and casualties?

But Virginia a Countrey which Nature hath no lesse particularly assigned for the production, food, and perfection of this Creature then Persia or China, stored naturally with infinites of Mulberry-trees, some so large that the leaves thereof have by Frenchmen beene esteemed worth 5*l.* in which the indigenall and naturall Worme hath beene found as bigge as Walnuts, and the using in the South thereof in admirable plenty and excellence; if this mystery were but duly followed, and industriously promoted, might be a Magazine for all the Westerne World, and singly in her selfe out-vy France, Spaine, and Italy, in all their advantages collected.

Here the Leaves are onely sold by nature, who requires no other satisfaction then industry to make use of her bounty. Timber to erect their Fabricks is provided, and costs no more then preparing a benevolent Sunne, and a Serene Sky, contributing their indulgence to its perfection. No narrow assignation of Ground (richer then
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the most fertile France or Italy can pretend to, or boast of) to plant those Trees on, if not neare enough to the settled Plantations; in briefe, all the conveniences imaginable to assist and advance this to the Noblest Commerce in the World, if neglect and sloth make us not ingratefull to our selves, and nature, by abusing our selves, by not using her bounty.

To further this happy designe, let us descend into an unequall comparison: Let us compare our most incomparable Virginia, where the Mulberry and the Worme are aboriginall to Italy, where they are onely adventitious: Let us imagine our owne Worme of that strength and greatnesse onely equall to those of Brescia and Italy, where the usuall ofcome from sixe ounces of seede is 72, or at least 60 pound weight of Silke, and adhearing to this Parallell; let us see the apparency in the profit.

A man and a boy, if their hands be not sleeping in their pockets, will feede as many Wormes as come of sixe or eight ounces of seed till they be past their foure first sicknesses, and within some 14 dayes of spinning: Indeed the last 14 dayes require a more extraordinary diligence and attendance, a more frequent and carefull feeding, because in that time they conceive, gather, and store up the disposing matter from whence the Silke comes, which by an incomprehensible mystery of Nature, they after as it were vomit out of their mouthes, and spinne out of their bowells. At this more particular season, there is a necessity of adding the labour of three or foure helpes more (to which Women or Children are as proper as Men) which is an inconsiderable accession considering the gaine arising from it.

That you may know the reason why Women, Children, lame and impotent persons are as sitting to attend the last fourteene dayes, as Men, will appeare by their labour, which is nothing but to feede them within doores, cleanse, dry, and perfume their lodgings, with some strengthening, but not overstrong odour.

And as one skilfull in this noble mystery is sufficient for the employing, overseeing, and directing hundreds under him; so (the skill being rather experimentally to be taught, then built upon long and ambiguous precepts) he may bee able to perfect all those under him, within the five or six weeekes time of their employment in the full understanding the mystery. And the better to incourage both
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the teacher and learner of the mystery, the master should be invited by reward to be liberall in communicating his knowledge, and those under his instruction encouraged by arguments of honour and profit proposed to the best proficient, would disperse seeds of emulation and diligence, since every one would imploy himselfe seriously to engrosse and appropriate to himselfe the reputation and advantage in the victory.

And in boyes and children, disputations frequently set on foot, with some slight distinction of merit, would make all that are ingeniously disposed, quicken their observation and diligence, to gaine the credit of prelation. Though to take off all discouragement or despayre, from those lesse apprehensive and docible, in this noble and gainfull Trade of Silke, there is no such absolute necessity layd upon them to be superficially and precisely curious in observing the Booke Rules, and written Precepts, that upon the omission or unpunctuall observation of any of those Precepts in hatching, lodging, feeding, and tending of the Silke-wormes, wee should imagine such minute deviations might occasion an improsperity or generall failing: for wee will admit something may be wanting either in materialls, accommodation, or preciseness of knowledge; yet may the worke (a higher and irresistible cause not interrupting it) prosper and succcede, notwithstanding such defect, to the great contentment and gaine of them which keepe them.

Let us imagine it to be granted that the indigency of the person improving the incommodiousnesse of the place, or want of House-rooms, which the Bookes exactly tie us to, be in many things preterrégular (though such a supposition may fall upon any other part of the World more justly then Virginia, where all materialls and conveniency answer our exactest wishes) yet will dayly examples confirme us, that in Languedoc, Provence, and other parts of France, and as many in Spaine and Italy, amongst the common sort of that exaction tyred people, that one poore low-roofed Cottage, and one Roome in it is all the house extent they have to take their sleepe in, dresse their miserable dyer, and serve themselves of for use and retirement; yet does this industrious Creature (such are the blessings with which God rewards the sweat of Industry) thrive as happily (and sometimes answer labour with a greater felicity) as those which the curiosity of Richer persons fit with all commodiousnesse

of Chamber feeding, and attending, which is a speaking encouragement that no man should despaire, but reposing a cheerefull confidence in the blessing of the Almighty, with this Resolution, that what ever means, what ever curiosity, art, or precept, may contribute towards the preparing and facilitation of a worke, yet the end, the event must depend on his eternall goodnesse to crowne it, and all our labours projected with never so great a Talent of humane wisdom and experience, must conclude with this never failing truth: That except the Lord build the house their labour is but lost that build it: Except the Lord keepe the City, the Watchman watches but in vaine. Wee must therefore lift up our hearts and eyes with thankfullnesse unto the Hills, unto the Mountaine of Israel, and Rock of *David*, from whence those streames of blessings must acknowledge their sole, their originall Fountaine, which may serve as an admonition, that neither the whole, nor any part of the worke should be begonne without applying our devotions to him: Let it therefore be the Morning Omen to the worke, and the Evening auspice, Lord prosper the worke of our hands, prosper good Lord our handy workes. After the Reposall of this confidence in God; let him apply himselfe with his greatest industry and ability, with this comfort and assurance, that he cannot but make a considerable returne; Though wee should be much injurious to Art (the noble right hand and Midwife to Nature) if wee should deny a more promising probability of a riper and fuller gaine the more curious and observant he is in following all the approved experiments, Rules, directions, and precepts thereunto belonging.

But the chiefest aime and intention of those Rules are to illustrate the perfection of this Art, and to informe your knowledge, and better your future experience and preventionall care, if any misadventure arrive, or miscarriage in the Silke-wormes, or if they prosper not equally this yeare with the last; for by inspection upon them you may understand the cause and reason of such misadventure, and with it the remedy; and this also takes away all dispaire or discouragement for men, commonly men till they are convinced in the naturall cause of a disaster or failing attribute, all such mischances to Nature, or else impute the non-thriving to their owne misfortune by a ridiculous opinion that they are not ordained to be fortunate in this or that Mystery, so frequently does Fortune incur the blame
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of humane neglect or ignorance.

Besides wee are to imprint in our knowledge, that no Rules can have so much of generality and exactnesse, which will not admit of deviations arising from some particular and variable circumstances. Wee must not therefore conforme the nature of the Climate to our Rules, but our Rules to it, in which wee must resume to your deliberation how, and in what one Climate differs from another, how the constitution of this yeare varies from the next, or the precedent, the immediocrities of heate, cold, drought, and moisture, serenity, or mists; &c. The manner of their lodgings, the quality of the winde to be admitted or excluded: To temper a season inclining to a preternaturall coolenesse with an artificiall heate, to refresh and infrigidate the Aire in times of immoderate heate, by admitting the cooling Aire and Windes proceeding from a cooler Quarter, and this to be observed with a more particular care; when they spinne their Silke, that Creature then being very obnoxious to be stifled with too much heat.

There must be likewise a providentiall regard in a moist season, that the Mulberry leaves be carefully dyed after their gathering, before they be administred for food to the Silke-worme: But if the season pertake more of drought it will be wisdome to let the leaves lye and shade a little after their gathering, that they may have them coole and refreshing, and in seasons of temperature and continued droughts, it may be very requisite to water the Roots of the Mulberry-tree, which will be a refreshing to the leaves, and this is usually practised in Spaine; especially if the Mulberry-tree be seated in a hot or dry ground, which otherwise must not be so prescribed without particular caution.

Nor is it below our consideration to weigh the condition of the place in which the Mulberry is planted, if in a sower soule or wet soile to collect what inconvenience that food may bring unto your worme, and therefore if your necessity will admit it to avoyd such wholly, if not to use them with such qualifications as may make them least offensive.

After having regard to the nature of the ground your Tree receives its juce from, the quality of the season, in which you gather them, it falls next to your consideration to compare the kinde and nature of the Tree, together with the kinde and nature of their

seed, worme, and silke, and directing your selfe by an exact observation of particular circumstances; so to make exceptions, and to order every thing with judgement and discretion thereafter, that your Bookes and experience may by that meanes walke hand in hand together.

But time and observations will afford you many experiments, out of which perhaps some more rules of Art may be framed, in divers particulars, more consenting to the Country and Climate of Virginia. Which finding, after good triall thereupon made, it will become the reputation of a good Patriot in generall, and a good Master of a family in particular, to digest them into such a regular order and method, that the publication thereof may be a common benefit to all, and a private memoriall to particulars.

For since in Persia and China it does not fall under likelihood, that they can oblige themselves to observe all particulars in its strictest limitation, where such an infinite quantity of silke passeth through the hands of the people, it is very agreeable to reason that in a Climate of the same nature and parallell, namely Virginia, there may be rules found out of far lesse brevity, and more pertinency, then have yet been considered or published.

And yet where all these Rules are circiously observed, they make not onely in Spaine and Italy, but in the colder parts of France a far greater gaine (the quantity of adventure and time considered) by thus chargeably feeding of Silk-wormes, then by any other commodity whatsoever.

But to avoid that inconvenience of fetching leaves a far off, or attending the growth of your owne Mulberries, or that necessity which makes the poorer sort of our owne miserable people to lodge them in that Roome which is their Kitchen, their Chamber, &c. it is all. With what ease and conveniency may there be a house set up in the middle of a Grove of Mulberries, naturally growing, where the Silke-wormes, in a dry Cabinet of Boords, after the manner of Sicily, may be kept (described more largely in the Bookes which treat of this Silke-worme, then can bee expected in this paper) set up with Stones in it, in case the Country and season require it, cyther to correct the ill heats, or (if so be they are seated in cold, moist, or shady places, of which your owne sense and experience will quickly acquaint you) to give the ayre a temper and qualification, which if not prevented

prevented, may destroy your worke by killing the Silkworme.

And this Lodge built for them, the season of the yeere will invite your selfe and family (I meane such part of your family as you assigne to this worke) to lodge there also, the time being at the most but six weekes, and for the first moneth, one third of your family will be sufficient to feed them, but the last 14. dayes; the other 2. thirds will be requir'd that the wormes may bee more often and plentifully fed the well feeding at that time contributing much to their strength and perfection, and consequently to the improving your expected silke, both in quantity and quality.

That all may be invited and courted to this undertaking, in this glorious Countrey, Nature hath left us destitute of no materialls. To erect these slight silken lodgings, will be no more expences, then your labour; nor is that any greater, then to cut out some posts and studdes, fit them, and set them up, then to cleave and saw out small quarters, rafters, planks, pales, and boards, to make and set up the sides of the house, in stead of more substantiall walls; and to cover the roofo in stead of Tile. For the effecting of all which with the lesser trouble, that Countrey affords abundance of Woods, which will runne out, slit, and cleave into long lengths and breadths, which by the directnesse of the Ground will rive in a manner, as if they had beene sawen for the worke. All which must be so close layd, joyned, and nayled together, the one still lapt over the other, that no Winde or Raine may penetrate therein to offend that laborious Creature, and this may easily be prevented, if such chinkes and open places as you shall discover bee stopped up with Lome, Clay, and Lime, of which materialls in those Countreies you will finde no want. And to this purpose the Indian Mats, and the like things may be made good use of in this way, which will be sure to keepe out Winde and perhaps Raine: But to these things your owne inventions, *pro re nata*, will abundantly furnish you with matter of preventing casualties. Nor will it bee unseasonable to repeat the extraordinary convenience of Saw-mills, which in this case will be in a high degree serviceable to you, and of this the whole Colony will be beneficially sensible in boards, Planks, housing, Silke-worm lodgings, Timber, Shipping, and all particular kinde of uses.

And this once erected, with what speed may such a house be clapped

ped up together, with a few nailes one lopping over another, either long like a Bowling-Alley, that the functions of the Family may be distinct, and no offensive heat or sent disturbe the Worme in his curious operations.

Or being in doubt of surprisall, some Families going into the Woods together may equally joine together, and those wooden houſes (ſtill obſerving that the Roomes where the wormes are may be ſet end and end together, that ſo the Kitchins and their lodgings may be ſtill the two extreames) may be caſt into the forme of a Fort which palliſadoed, and your houſe ſentinelled by halfe a dozen of good Dogges, wilbe a ſufficient defence againſt all the Natives of the Countrey.

And this may be in caſe they worke not in common, which if by compact they agree upon, the Lodging for the wormes may be caſt in the middle of ſuch a circle, the Timber houſes round about ſhading them from over much heat, wind or moiſture, and the neceſſary fires there made, will thoroughly cleere the ayre of all vapours and miſts which may diſorder this innocent Spinner. The Silke Harveſt ready, and the encrease brought to a juſt eſtimation: The Cohabitors may according to the agreement made betwixt them, retorne with their Dividends, and this removaſl into the Woods will have the ſame nature of content which the Citizens take in a time of vacation and City wearineſſe (Citizens being never ſo weary as when they have no worke) to viſit the delights of the Countrey, though with different ends; ſince theſe in their Voyages of pleaſure expend, the other both ſave and encrease their ſtock and treaſure. Theſe Boards (the worke ended) being taken downe are ſerviceable for ſeven yeares together, and eaſily erected or renewed.

I am not altogether of advice, that the Indians be hired to aſſiſt you in theſe Remoter Workes, as ſenſible how apt they and the Divell their Tutor may be to embrace an occaſion of being treacherous; but if they could be brought to worke by Parties (well watched and Spyes amongst themſelves ſet over them) in the middeſt of our moſt populous Plantations, with their Wives and Children, who will eaſily runne through this curious, but not heavy labour, and may be ſufficient pawnes for the Indian ſidelity, if cunningly divided, they would be very ſerviceable in this kinde for a ſmall Reward, and peradventure might be made grateful of for this

this worke heereafter by undertaking it themselves, which may be manifested for these Reasons.

1. First, the Indian is naturally curious and very ingenious, which they shew in all their works and imitations: the only thing that frights them from bringing any work to perfection, is the labour attending it.

2. But to feed his curiosity, there is nothing in the world more profitable then this curious atome of Nature the Silkworme: to see this untought Artiste spin out his transparent bowels, labour such a monument out of his owne intralls, as may be the shame, the blush of Artists, such a Robe that Solomon in all his glory might confesse the meannesse of his apparell, in relation to the workemen, cannot but bring them to admiration; and that those spirits whose thoughts are of a higher wing then ordinary, may bee convinced of a divine power of the hand of God in the Creation: which gaynd upon him, it will not be impossible to drive him to an acknowledgement of Redemption, if private ends or any other respect then that to Gods glory, possesse not those who should cover a multitude of sinnes, by winning a soule to his Creator, and forcing him from the jawes of his Destroyer.

3. In this curiosity there is little or no labour (a thing which they abhorre) their women and children will bee sufficient to goe through with it: and if they could but be brought to it, our Trade with them for silke would be of greater consequence, then all their Furs or other commodities put together.

4. By this meanes it were possible to fasten Cloaths upon them, which if once it were effected, that which Mr. Bullocke excellent partly calls, The Universall not of Nature. Ambition would cement them to a more orderly course of life, and one still striving to outvie the other in bravery of habits: there would be no labour under Heaven like this, to reduce them to civility, the toyle thereof being inconsiderable, and the profit great to him in respect of his now trifling Merchandise: and to us by trading with them, might bee returned for 5s. the pound at the most in commodities.

5. By this means would he be brought to plant great quantities of Mulberry trees round about his Plantation, which according to his constant inconstancy, evermore shifting, would necessarily, our owne numbers increasing, fall into our hands and possession, or if he should

should against the tide of his nature abide by them, yet a very inconsiderable trifle would buy the propriety from him.

6. The Silke worme harvest lighting at such a season of the year, wherein he by improvidence hath wasted all his Bread-corne, at which time he usually retires into the Woods to seeke a thinne subsistence, by the allurements of this great profit he would undoubtedly stay at his Plantation, and allow us a share in his increase of Silke, for such provision of Maiz as would maintaine him, his would be a large accession of profit to the English.

7. Admitting Virginia in its whole extent from *Cape Henry* Southward (as a worke so easily compassed, and such profit ensuing thereupon, especially to the Weroances or Reguli, who have many Wives, Slaves, and Children, would hardly faile from being a universall labour) to containe in all thirty thousand people, of which the fourth part or more men, if this Staple be followed by them, and our vigilance preventing any Traffick of other Nations with them, it will yeeld the Colony of course a trade with them worth cleare a hundred thousand pound *per annum*.

Neither doe I comprehend a sufficient Reason why in so happy a Climate as that of Virginia; there may not be a double Silke Harvest: This I am sure of, that there are secrets in Nature of retardation as well as acceleration of Springs, and both being industriously brought to the experiment, the acceleration anteceding the first Spring, and the retardation postvening the latter by three weekes, (which may easily be effected by election and distinction of ground to plant in) and at the latter end of the Harvest the seeds being disposed and ripened for production, will without doubt produce an effect answerable to the most inestimable profit intended by it.

That the election of Ground may doe this, wee may see by frequent examples betwixt things well cultivated, and that which is never transplanted from its first wildnesse, and there are many precedents round about us, where in one and the same Towne, one and the same fruit have oftentimes three Weekes distance of time betwixt their unequal maturity; the naturall warmnesse or coldnes of the Ground occasioning the advance or procrastination of fruits according to its severall disposition.

Nor can such a course be any interruption to Harvest or Vintage, both comming much after the season of the Silke worme, though

I should (in submission to better judgement) conceive that with transplantation of trees (such as they would have come later then ordinary, for that purpose being loosed from the Ground neare upon the ascent of their sap would spring for that season according to their expectation later then is usuall, and the next yeare its novelty of ground having made it wanton will come much earlier, and more improved then those whose fixure to the place of its first pullulation keeps it selfe to its former constancy, and by this meanes the later Harvest would not be at the most three Weekes time after the (usuall) income of the first.

And without doubt the Chineses and Persian could not vend such vast quantities of Silke, with which they furnish so huge a part of the World with one single Harvest, which though wee are at present ignorant of, yet what should discourage us from delivering such conjectures to a tryall, since the examen of it is not without probability, nor the discovery without an extraordinary certainty of profit?

Those who will object that notwithstanding 200 years practice Italy hath not discovered this mystery, or if discovered, found it destitute of successe, may be pleased to receive this Answer: That there is an immense disproportion betwixt the happyest Region of Italy, and the South of the excellent Virginia. Italy (and that annually) is subject much to inclemency of Winters, in respect of our more temperate Maiden, where Snows and black Swans are alike Prodigies; the cold there is rather like a Phletomy to tame the Plethorick abundance of Springs, then dead it: Nor are the Springs of Italy so early as ours in that Climate, and the Mulberry shooting forth later then all other Trees by much, may by this meanes of transplantation and heat of soile, be equall with the first, and by that early apparence give day-light to this and other more abstruse Magnalia.

I have insisted so much the longer upon this Mystery of the Silkworm, because (if it were handled by a better pen, judgement, and ability) it is every way noble and sublime, so much worthy the knowledge, not onely for the benefit (which is extraordinary rich how ever) but for the admiration of Nature, who hath abbreviated all the Volums of her other Miracles into this her little, but exact Epitome, like that Artist who contracted the whole body

of Iliads and Odysses into a Nutshell.

Besides what wee have sayd of Silke wee shall find the Indian profitable to himselfe, and as in the Staple of Wines, of which when he has received the whole knowledge, wee cannot make the least tittle of doubt, but he will with all eagerresse prosecute it: First, because it concerns his belly, to which no people under Heaven are more indulgent; and secondly, his Wife and Children who plant his Corne may take the charge of the Vineyard with not much more labour. But that which turnes to our advantage is, that the Indian communicating the knowledge of the Grape to his Neighbours, and they transmitting it all along as far as New Spain, will stir up the Spanish jealousie to interdict all Viti-culture amongst them, and as far as the extent of his power can fathome to prosecute severely all such Natives as shall make it a subject of their industry to the prejudice of Spaine. This must of necessity make strong combinations and leagues against the Spanish Tyranny, which though they are not of themselves able to shake off, yet will the Spanyard feare to extend himselfe further (except in such strength as at present his condition denies him) knowing the Indians unquenchable thirst of Revenge, and his laying hold of all opportunities to put it in execution, with all the powers of his understanding cruelty and malice.

And thus shall the Spanyard in case he attempts our supplantation be constantly discovered by the siding Indian, and if there be a necessity to prevent his malice, by turning his designe upon his owne head, infinite occasion of intelligence may wee have from the enraged Native, how to attaque him in his strongest security, where either the distance or impassability of the way will make him confident and carelesse.

Further use may be made of the Native in fishing after Pearle, to which if wee allure him by a constant Trade with him for them, his owne profit will quickly enlighten his desire of more, and that desire quicken his industry.

That Virginia affordes multitude of Pearles, Mr. Lane is sufficient to give publick information, where he tells us a Relation delivered to him of a Wereance, who had so great quantity of Pearle, and did so ordinarily take the same, as that not onely his owne skinner that he weareth, and the better sort of his Gentlemen and Fol-

Followers are fet with the sayd Pearle ; but also his beds and houses are garnished with them, and that he had such quantity of them that it is wonder to see : These are Mr. *Laues* words exactly.

Nor is there any difficulty in the discovery of this, or ingrossing the Trade ; especially since wee are the Masters of the Countrey, and if any other Nation should attempt to partake in the benefit of our Trade, the strength of Virginia is at present such as may repell by violence, all Forraigne incroachments upon their trade and livelyhood.

The Indians unanimously consent that twenty two miles beyond the Falls, is a Rocke of Chrysell, and this they evidence by their arrowes. very many whereof are headed with it. And that 3 dayes journey from thence, is a Rocke or Hill of Silver Ore. Beyond which, over a ledge of Hills, by a concurrent Relation of all the Indians, is the Sea, which can be no other but that Sea which washes the shore of China, &c.

That this report of a great Sea Southwest beyond the Mountains, cannot have the least of fiction or confederacy, since all the Indians from Canada to Florida, doe unjarringly agree in the Relation, is obvious to the meanest apprehension.

The discovery whereof, if we fall upon it by degrees, will bee a worke of no long time or difficulty, but the unexpressible profit and glory of the action, will raise the noble head of this above example Countrey to such a high Zenith of wealth, power, and lustre, that it will be reputed a very remarkable degree of felicity to any Nation which shall reach to such a Verticall point of glory, as to bee reputed but our second in these most noble considerations.

By this meanes what wealth can there be in those richest provinces of the World, in those Countries which Nature created for her Cabinets of excellency, which we shall not discover ? What discover without a power of Appropriation ? What opulency does China teeme with which shall not be made our owne by the Midwifry, by the Juno Lucina of this virtuell passage ? This by a happy transmigration : by an innocent Magick will convert that Countrey, (which by a swelling denomination, yet without not some pretence of Reason its Natives call by a Title signifying all under Heaven) into our Maid of admiration and envy Virginia. Her Silke-worm shall spinne for Carolina, her Cloth of Gold be weaved for Ro-

neak. The English name shall keepe company with the Sunne, and those Nations who owe him a particular adoration shall honour it as the next thing sacred. The Easterne Nations oppressed with the slavery of those illustrious horseleeches their princes, will come under our shadow, and by a thicke repaite to our most glorious and happy Mayden, live with us in that liberty, which Nature in their Creation intended to the noblest of his creatures Mankind. And by this recourse all those curiosities of Art, in which those Easterne Nations transcend Europe, will bee conveyed to us with their persons. Cattell and Horse in which they abound, will bee sold to us for nothing, for European trifles, whilst the more necessary Staples of this our Western World, will be sold at advantage, not convenient to be mentioned. The voyage short, easie, rich, and pleasant. No doubling of the Line, no calentures, fearvies, or other long passage diseases, to affright or distast the laborious Seaman: whereas now the enfeebling and destroying of Mariners is almost an unavoidable consequence of those long and dangerous rather circumstances, then voyages.

Burlest we should sing a Psan before a Victory, it will not bee unworthy our labour to discourse what means may be used in this Discovery. Which if it should misc in its prosecution, (for which sayling there is not the least shadow of probability) yet might carry a vast profit to recompence all your paynes and expenses.

That it must not bee attempted at the first heat, but must have more recourses then one to the fire of a Trial, will bee made apparent by these reasons.

First, the inconveniency or non feasibility of carrying so much provision as will serve the Discoverers, whose number, in my opinion, cannot bee lower then two hundred, if wee let slide into our deliberation the many unknown Nations, through whose territories we are to make our passage, and which by common estimation, are much more numerous in the Island, then Marine Countreys.

Next, admit wee undertake and compass it with such a number, yet the discovery not being capable of secret among such a multitude of undertakers, the publick resentment of such a seditious approaching, not suffering people to be silent, wee should have this active to the Spaniards knowledge, who will rule all States under

Heaven

Heaven, to dispossesse or prepossesse, and indeed the danger his Peru, Chili and Philippines, by such seating, may lie obnoxious to, will adde spurres to his inclination to prevent us, which till wee bee in a condition to resist, may be effected with our absolute ruine.

The safest way therefore is, by degrees to scale upon the design, and take our way thither, by ceasing of places of advanage, very frequently found in that Contry, which we may progressionally fortifie at every twenty or five and twenty miles distance, and to these places we may constantly tend supplies of victualls and ammuniti-on, not only for the men there Garrisoned, but for our owne reception and maintenance in the Discovery: and these men standing continually upon their guard, may (I meane those most remote) by conference with the Indians, discover with much ease, of what distance, what access, what harbours, what frequentation, and by what people the neighbour Sea consists of; to take with them exemplars of all Mineralls, Drugges, Dies, Colours, Birds and Beasts, drawne to the life in colours, which (by an invitation of reward) will be a surer meanes of discovery, (if any such be) then by multitudes of people, whose number commonly (as in the example of *Fernando Soto* in Florida) hastens no other discovery, but that of unavoydable famine, and being usually, either through necessity, or a disordred manner of living irregular and ungoverned, fright the inhabitants from all commerce and conference or else make them join in a confederacy to abuse and remove them by telling their unwelcome Company, golden lies, and miracles of Countreys farther distant, where they are likely to find small satisfaction for their vexatiousnes or hunger.

Reason and experience will condemne us of folly, if wee should refuse to profit by commendable examples, though proceeding from Enemies or Friends suspected: It will be therefore an incitement irreprovable to commend to our owne imitation the Custome which the industrious Spaniard practiseth in his designe of discoveries: Every one of the associates carry a little horne about their necks in such journeys, by which meanes if the error of the night or thicknesse of the Woods occasion any separation betwixt them, or an Ambuscado of Enemies make the passage doubtfull, by winding of this Horne, presently notice is given to the rest, who upon receiving the sound give the first wind notice of their residence,

to which they may repaire, or testifie their apprehension and readinesse to prevent all hostile stratagems.

The same indefatigable Nation in their passage over Rivers, presently make themselves light Canoes after the Indian mode, with which entring themselves and swimming their Horses (whose heads they keepe above water by a collar fastened to the Boat) they overcome difficulties of currents, which to any other but those seeme insuperable, and indeed their labour in this kinde shew them of admirable Resolution and Constancy.

Though wee may entertaine grounds of hope and confidence, that this discovery of the South Sea may be made without any tedious Land-journey, since it is certaine that from the great confluence of Waters in the Gulfe of St. Laurence, foure mighty Rivers receive their source, the first whereof pouring it selfe North into Canada, another running Eastward into the Sea called Hunsions River, the third running Westward into the Maine are already discovered, but the fourth upon which wee have reason to fixe high expectation bearding Southward to Florida, washes all the backside of Virginia, and may in all probability discharge it selfe into the South Ocean, which if it suit with our conjectures, Virginia will have by that means a double accession of security and convenience.

For our security it will be a naturall bar betwixt us and the jealous Spaniard, who if he should unjustly continue the possession of our Florida, which is indisputably English; yet thus dividedd from us by a vast River full of Islands, and places convenient to command the Channell fortified and maintained by our Nation, he is too full of providence and caution to attaque us, if once in so good a posture.

For the conveniency which sufficiently speakes it selfe the ease of transportation by water, and all in our owne Chanell, the saving of Land charges, and probability of a more speedy passage, are prespicuous arguments to commend it.

And to confirme the probabilities of this passage by the Lake the more strongly, the Indians of Canada confessed to *James Cartier* that it is but a Moneths sayling, from thence to go to a Land where Cynamon and Cloves are gathered. Others told the same person, that from the place where they left their Pinnace, there is a River which goeth South-West, from whence there is a whole Moneths sayling

saying to go to a certaine Land, where there is neither Ice nor Snow scene, where the Inhabitants doe continually War one against the other, where there is great store of Orenge, Almonds, Nuts, and Apples, with many other sorts of Fruits. What ever beliefe other men bestow upon this Relation, I know not; but truly in such a generall concordance of Reports, where there can be no room left for confederacy or designe, to be perswaded of the truth therein, cannot have any vitious tincture of facility or credality.

But it is time to remit these high and noble achievements to the prosecution of those who have more power and ability, who may give such a discovery the honour of their names, and transfer a perpetuall illustrious memory to posterity, we shall onely suppose it faillible and hope the effects will answer such supposition.

Which if it should faile, why may not Virginia in her future felicity of silke be a new China and Persia to Europe? why may not all the Spicery of the East flourish with an equall successe in this our most justly tempered Climate? already can Virginia boast of Cinnamon, which if transplanted might not be inferiour unto any? why may not the Cloves perfume Virginia with as aromatick redolency as the Philipine Gardens.

Our aire is more serene, better tempered then theirs, nor have we any more sense of Winter to hinder the ascent of sap then the Moluccians; if it be any thing more harsh in cold, yet is it but a check to a peradventure too forward Spring. What multitude of flowers have our late Gardens in England seen non native to this soyle or Climate? Fruits thought solely proper to Italy and Spaine flourish here to the envy of those Countreies, who see often times the Colonies in a happier degree of prosperity then the Mother, for Fruit and Flowers.

But these disengagements must be the Daughters of time, curiosity and industry, to whom a way may be made passably, and easie, by that uncabinetting and deciphring of Nature, Garten Philosophy, what harsh disposition in the World will not be lenified and refined by these curious conclusions? *Dioclesian* could postpose the science of governing Mankind to the knowledge of managing his Scions, to see those Plants grow up, which his own laureld hand had sowed, watered and attended, and accordingly flourish, was in a manner the production of so many Children, who in this have the advantage
that

that their *flourescence* is not subject to selfe-deprivation : give them but an acceptable ground : a bounteous Aire : and an aridding Sunne and they answer the most exact desires of the Setter or Ingrafter ; but Children, let them have all the Auxiliars of a full Fortune, warmth of education, and heat of encouragement, by some private disease of the genius, by some secret malignity in nature, or its right hand custome, seldome or neuer thrive according to the wishes of the Parent, they are either too ranke with insolence, too much parched with rashnesse, or withered with infamy and luxury, that those which planted them instead of delight in that which they esteemed their Masterpeece, have nothing but a Spring of indignation, or an Autumn of Melancholly to answer their expectation, and are so far from contentment at their groweth that they would have reckoned it amongst the Smiles of their Fortunes, that no warmth of theirs had contributed to their production, no indulgence to their continuance and education.

These allurements are for those whose delights onely are interested and denoted to this retired activity ; but those who looke further will finde (that which is rarely or never contingent to other contentments) this pleasure to be attended with an inestimable profit, and one of the most certaine returns in nature : But this fertility-labouring Countrey, especialy in its Southerne beauties, in its Roanoak excellencies, like to a Princess, all compos'd of Bounty, suffers no addresse to be made unsatisfied. Gentle Winters to court your seed, warme Springs to marry them to perfect Masculine ripenesse, nothing but ingratitude and indiligence to delay or divert its liberality, hitherto (like those confined Virgins in a barbarous Seraglio) it hath suffered the imputation or injury of sterility by a non-complacency in its Savage Amourists, the abundance of perfection having put them into a satiety or incapacity of enjoyment.

The truth of this being abundantly manifest, an apparent profit and delight inviting the able and industrious ; necessity must be the next Argument to those whose Poverty can plead no excuse for their indiligence ; yet this laborious necessity is not so ingratefull as in England, and in other more thick-peopled Countries, what ever you sweate for in this bounteous Region, is crowned with a recompence amazing your expectation ; such things as make poverty and life wearisome, contempt of, or impossibility of any melioration

tion to their condition are things heere never charged upon honest indigence, or denied to a commendable industry, nor can they palliate their sloth and sloth with a pretence of wanting materials to worke upon, or plead that such things as should employ them must be first had out of England, since there is enough abundantly and naturally in that unprefidented Countrey to employ their industry, to enrich their labour.

Though Silke-grasse is unquestionably a Staple which will bee Neighbour to the profit of the Silke-worme, though the naturall Hempe-stagge may be a Merchandize in time equal to English Flax, though the Sirlaparilla be an extraordinary vendible Commodity, though Pipeclaves be so beneficiall, that with not many drops an extraordinary workman may make his labour worth sixty pounds *per annum*.

Though he has fish there, and in such abundance that the attending diligently upon two seasons, onely returns him a Reward of one hundred pound sterling in Sturgeon, Salmon, Herings, Mackrell: Pot-ashes a rich and never decaying Staple, &c. Yet since against this an objection may be made what course they may take for their provisionall subsistence. Those who apprehend such doubts will be pleased to receive this answer, in which if they are sensible of Reason they cannot faile to receive satisfaction.

There is no man will ever be denied the loane of Corne for his house-spending, and seed till the Harvett; if he be a single man he may prepare as much ground if cleared, and set as large quantitie of Corne for his owne spending and repayment of what borrowed, in two dayes space as will abundantly suffice him twelve Moneths.

Admit there be no cleared Ground, yet if he but unbarke the Trees one foot round after the Indian mode to prevent the shade occasioned by the leaves, which such unbarking quite destroys, the Corne (set betwixt those Trees) will thrive and prosper exceedingly, and their ground thus prepared will last seven or more yeares successively, and this worke cannot last him above five dayes at the longest.

If he have a Family, his Wife and Children will be able to beare part in that labour, and many others.

For Provision of flesh, if he can use his peace he may, even at his

labour in the Woods, have opportunity of killing Venison, Hares, Wild-Fowle (in their season innumerable) and Fish, of which the Rivers are all times plentifully furnished, and of great delicacy; if in all this abundance he is yet apprehensive of Famine, wee shall refer him to the number of those who are afraid to be starved for meat in a Cooks shop.

Besides what a small summe of money will buy your Cattel, and Swine in Virginia? Whose feeding costs them nothing but thanks to God, who has spread that superficies of that noble Countrey with perpetuall fruit and verdure. Poultry in infinite variety and plenty, the forbearance of whose increase for a small terme of years will make them so numerous, that they may alwayes have a full table.

The West Indie Potatoe, (by much more delicate and large then what wee have heere growing) besides that it is a food excellently delicious and strongly nourishing, fixes himselfe wherever planted, with such an irradicable fertility, that being set it eternally grows: of this an extraordinary pleasing and strong drinke may bee composed.

Nor is the Maize lesse commendable for bread then malting, of both which in its use it affordeth a peculiar goodnesse and convenience: And I am much to learne how a poore man can in justice complaine of want, when he is as it were besieged with such plenty: This for provison may abundantly satisfie, but if he can be content so forbear debauches and profusenesse for the first three yeares he may by any of the meanes aforesaid arrive to such a condition of thriving, that he may allow himselfe a large latitude of expences (that first three yeares once expired) without much empairing his fortunes.

But since all men either by constitution of age, oppression of yeares, or different education, are unable or improper for the Fishnet or Hatchet, I shall offer them a way which may be lesse laborious and peradventure more gainfull; yet before I descend to this, I must take leave by digression to enlarge something which I have already hinted on, namely the benefit of transplantation.

The removing and transposition of Wild Plants, doth with an experimented happinesse wonderfully mitigate and engentile their best noble nature; whether (as an Author delivers a very elegantly)

ly) it be by reason that the nature of Plants, as of men, is desirous of Novelty and peregrination, or because that at their parting from their former grounds they leave there that rank wildness, ymbrassy and ill quality from the Forest, where is first rooted the gratefull novelty and allurements of a well cultivated stile makes it receive a new by exiling it from the old savagenesse: and indomestication of its first seat and nature.

Since then the removing of wild Plants adds so much to their improvement and melioration confirmed by naturall Reason and piercing experience: Why may not the diligent labour by removement and transplanting this excellent Staple of Silke grasse, make it thrive equally in greatnesse and goodnesse, there needes no more art to be used then that of comparing the soile (transplantations into worse grounds being naturally improsperous) and though there appeare now somewhat of trouble (though nothing of labour) in peeling the silky skinne of , yet that it may be broken as Flaxe or cleared by some Instrument (the Commodity richly rewarding the nobility of any invention) to this purpose ; time and further experience will no doubt to the publick enriching of the Colony and this Nation make apparent. In this any one which is not sworne a servant to ease and sloth, may with a small toile reape a considerable profit.

Next, what will not those Vines produce if well husbanded after their transplantation , and in this most delightfull labour the gain is so appaerent that almost the blindest judgement may perceive it.

Oranges , Lemons , Pine-aples, Plantanes, Peaches, Apricocks, Peares, Aples, in a word all sort of excellent Fruits will grow there in full perfection ; you may sleepe whilst they are growing , after their setting or engrafting , there needes no more labour but your prayers, that they may prosper , and now and then an eye to prevent their casualties, wounds or diseases.

Sugars, Indigos, Cotton, and Ginger, require a greater industry ; but if wee consider the difference berwixt the two Climates of Barbadoes and Virginia , the immoderate heate of the first and the exact temper of the other, the labour though it may require as frequent handling, yet is by much lesse toyle some.

In a word , if a man be yet desirous of a thriving condition in

this Countrey; I shall with his pardon believe him; distrustfull of Gods providence; or if he be so viciously disposed as to hope after a Land where he may enjoy an undisturbed plenty without the sweat of his browes, the Maps are so extremely deficient in the description of such a Countrey, that I must desire him to looke for a new World and Kingdome, for such an easie accommodation.

If any make an Objection why this Countrey stored with all these Riches, furnished with all these Staples, hath so long held downe her head in the lownesse of a desperate condition? Why being capable to crowne her browes with Garlands of Roses and plenty, shee fate desolate amongst the Willows of neglect and poverty? Let them but recall their Memory, how by the prevalency of *Gondamors* the Corporation was dissolved, their patent cancelled, to which if wee adde the cooperation of the Indian treachery in their first massacre, they will cease their wonder at its languishing condition, and convert it to a full admiration, how that Colony could ever raise her endangered head out of those Gulfes of distraction, in which the Gold of Spaine, the discouragement of the Court, the discontent of the better sort of Planters, and the desperate negligence of the more inconsiderable had in humane opinion irrecoverably involved her.

But the incomparable Virgin hath raised her dejected head, cleared her enclouded reputation, and now like the Eldest Daughter of Nature expresseth a priority in her Dowry; her browes encircled with opulency to be believed by no other triall, but that of experience. her unwounded wombe full of all those Treasuries which indeere Provinces to respect of glory, and may with as great justice as any Countrey the Sunne honours with his eye-beames, entitle her selfe to an affinity with Eden, to an absolute perfection above all but Paradize.

And this those Gentlemen to whom she vouchsafes the honour of her Embraces, when by the blessings of God upon their labours sated with the beauty of their Cornefield, they shall retire into their Groves checkered with Vines, Olives, Mirtles, from thence dilate themselves into their Walkes covered in a manner, paved with Orrenge and Lemmons, whence surfeited with variety, they incline to repose in their Gardens upon nothing lesse perfumed then Roses and Gilly-flowers. When they shall see their numerous Heards wanton

Surgeon, and Caveare, as it is in goodnesse,

Salt, 30s. the weight.

Masticke, 2s. the pound.

Salt Perilla wild, 5l. the hundred.

Salt Perilla domestick, 10l. the hundred.

Red earth Allenagra, 3s. the hundred.

Red Allum, called Carthagina Allum, 10s. the hundred.

Rosach Allum, called Romish Allum, 10s. the hundred.

Berry graine, 2s. 6d. the pound : the powder of graine, 9s. the pound : it groweth on trees like Holly berries.

Masts for shipping, from 10s. to 3l. a pece.

Por-althes, from 12s. the hundred, to 14. now 40. and 35s. the hundred.

Sape-athes, from 6s. to 8s. the hundred.

Clapboord watered, 30s. the hundred.

Pipe staves, 4l. the thousand.

Rape-seed oyle, 10l. the tun, the cakes of it feed Kine fat in the Winter.

Oyle of Walnuts, 12l. the tun.

Linseed oyle, 10l. the tun.

Saffron, 20s. the pound.

Honey, 2s. the gallon.

Waxe, 4l. the hundred.

Shomacke, 7s. the hundred, whereof great plenty in Virginia, and good quantity will be vented in England.

Fustick yong, 8s. the hundred.

Fustick old, 6s. the hundred, according to the sample.

Sweet Gums, Roots, Woods, Berries for Dyes and Drugs, send of all sorts as much as you can, every sort by it selfe, there being great quantities of those things in Virginia, which after proof made, may be heere valued to their worth. And particularly, we have great hope of the Pocoon root, that it will prove better then Madder.

Sables, from 8s. the payre, to 20s. a payre.

Otter skins, from 3s. to 5s. a piece.

Luzerns, from 2s. to 10 a piece.

Martins the best, 4s. a piece.

Wild Cats, 18d. a piece.

Fox skins, 6d. a piece.

Muske

Muske Rats skins, 25. a dozen : the cods of them will serve for good perfumes.

Bever skins that are full growne, in season, are worth 75. a piece.

Bever skins, not in season, to allow two skins for one, and of the lesser, three for one.

Old Bever skins in Mantles, gloves or caps, the more worne, the better, so they be full of fur, the pound weight is 6s.

The new Bevers skins are not to bee bought by the pound, because they are thicke and heavy Leather, and not so good for use as the old.

Pearles of all sorts that ye can find : Ambergreece as much as you can get : Cristall Rocke : send as much as you can, and any sort of Minerall stones, or earth that weighs very heavy.

Preserve the Walnut trees to make oile of, & cut them not down: so also preserve your Malberry and Chestnut trees very carefully.

In the month of June, bore holes in divers sorts of Trees, wherby you shall see what gums they yield, and let them bee well dried in the Sun every day, and send them home in very dry caske.

FINIS.

The first of these is the fact that the
 Government has been unable to secure
 the necessary funds to carry out its
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THE TABLE.



That Virginia is parallell with China, and the happiest Countreies of the East and Westerne World in situation; and if not superior, equall to the best in exactnesse of temperature. Page 1.

That it is stored with all sorts of Timber for structure of Houses, building of shipping, and all other uses, whether of necessity or ornament. Ibid.

That the native fruits of the Countrey are various and delicious. Ibid.

That the Virginia Sea affords Fishes for number and tast comparable to any other. p. 2.

That the Native Beasts of the Land are many, the Flesh of most excellent, the Hides of divers usefull, and the Furs extraordinary rich. Ibid.

That divers Harvests may be made of Corne in one yeare, with the means, and the generall quality of the soyle. p. 2.

That two mens labour in Virginia may be worth 360l. per an. p. 3. 4.

That Rice will there flourish with extraordinary increase. Ibid.

That Pot-ashes, Pipe-staves, and Clapboards may be made there in great abundance and equal profit. p. 4. 5.

That the Iron Ore in Virginia is equall to the best of any other Nation, and that Iron Mills will be of great advantage & profit. p. 5.

That divers rich Dyes, Colours, and Drugs may be found out there, and the way which the Spaniards use for this discovery. p. 5.

That Vines grow naturally all over the Countrey, which may make a rich wine. p. 6.

That Virginia will admit and improve the most generous Grapes of any other Countrey, whether Greeke, Italian, or Spanish, with the means to undertake and advance this Staple. p. 7. 8. 9.

That Virginia is comparable to Persia. p. 10.

That she is by Nature made capable of all those excellencies of China, to which she is compared, from p. 11. to p. 21.

That

That the art, use, and excellency of the Silk-worms is more convenient to be set on foot in Virginia, then any Country in Europe. p.21.

That the Silke-worms is as naturall to Virginia, as Persia, or China. p.23.

That Mulberry-trees proper for this Mystery grow there by nature. p.10.

That it may with much facility be set on foot, and with great felicity brought to perfection. p.29.

That in this the Indians may easily be brought to be conajutors. p.21.

That Virginia may admit of a double Silke-harvest. p.33.

That the Silke-grasse of Virginia may prove a Staple of incomparable richness. p.16.

That there is a naturall Hemp in Virginia excellent for Cordage and Linnen. p.16.17.

That there is a rich Copper (with great probability of a Golden) Mine in Virginia. Ibid.

That there is great probability of rich Silver Mines. p.18.

That Sugar, Cotton, Ginger, Indigo, and Pepper will grow in the South of Virginia with equal fertility, and much more conveniency then in Barbadoes. p.19.

That Muske and Civet may both be made in Virginia. p.20.

That from the Terra Sigillata, equal in goodness to the best, will be yielded an incredible Revenue to the undertaker, and that it is there in vast abundances. p.20.

That there is no exact necessity to observe all the prescribed rules written by Masters in the Silk-worms mystery; that example and observation will diminish the number of these rules, and the conveniency of Virginia for that Creature may much abbreviate them. p.25.26.27.

That all the Spicerys of the Philippines and other Countries may grow in Virginia in equal felicity, the place affording an happy, and pure, and a soile fitting in its variety for their general production. p.39.

That the excellencies of transplation to meliorate what ever transplanted may be with lesse charges and greater probability of thriving in Virginia, then else where made experiment of. p.39.

That ground may be prepared even in woody places for setting Corns, Fines, and Potatoes, without any eradication, or felling of trees, with great speed and little labour. p.41.

That

That there is a Rock of Chryſtall in Virginia, already diſcovered, and the place where.

P. 35.
That if the Engliſh wil but equall or imitate the induſtry of the Spaniard, what ever has been diſcovered in New Spain, Peru, and Chili may be (by meanes there ſet down) laid open to ſuch their attempts. That as the Indian may be invited to praſtiſe the Silk-worms myſtery, ſo with as probable hopes of ſucceſſe he may be gained upon to plant the Vine and Olive.

P. 34.
That his planting the Vine will cement him to the Engliſh to the diſadvantage of the Spaniard.

ibid.
That the South-weſt Paſſage may eaſily be found out by a conſtant intelligence and information of the Natives: from whence a trade and commerce may be driven with China and Caſhaya.

P. 38.
That a fiſhing trade may be driven in Virginia; which for excellency and plenty may be greater then that of Holland, and in conſequence to make the Staple of fiſh a rich, delightfull, and unlaborious knowledge.

P. 13. 14. 15.
That Salt in Virginia may be made in greater abundance and convenience, then at Roſhel.

P. 13.
That ſome parts of Virginia abound with Pearle, and that the Indian may be ſerviceable in fiſhing for them, himſelfe allowed a ſmall ſhare in the profit ariſing from ſo rich a Merchandiſe.

That who ever can but ſatiſſie for his owne tranſportation, neede not trouble himſelfe for any ſhock to ſet up with: ſince ſo many ſeverall wayes are propoſed for his enriching and maintenance.

Laſtly, it may evidently appeare through all the paſſages of the whole booke, that Virginia duly conſidered for exactneſſe of temperature, goodneſſe of ſoyle, variety of Staples, and capability of receiving what ever is produced in any other part of the World, gives the right hand of prebeminence to no Province under Heaven.

AS a Supplement to all which, ſince ſo many objections have beene, and are dayly made, leſt a wilful ſilence might believe their ſetuples as authentick as reaſon it ſelfe: ſuch as have beene made to me have had this answer returned them: with which I deſire to ſatiſſie and communicate to all others who may have the ſame doubts,

Why rather doe wee apply our selves to the South of Virginia, then the North? Why to a new where in probability all things may be wanting, rather then an old Colony where already there is great abundance?

To this may be returned, that the South of Virginia is more proper then the North, by reason of its fertility and aptnesse to produce all those Staples of Sugar, Cotton, Ginger, which the colder aire in the North will not permit to flourish: That the South is more proper, may appear by the large quantity of Palmetoes which have been found there, who cannot flourish in any Countrey in which there may be so much as an appearance of Winter.

Neither need wee so much feare a want or non-abundance in this new Colony, our nearenesse to Virginia and New England being able plentifully to furnish us with all sort of Cattle at a cheaper rate then in England, and the very reputation of this place once planted will quickly invite so many men as know by experience or information the excellence of the place, to remove what ever is theirs out of those more cold Countreys to joyne issue with us in the better Sunbeam'd Carolana.

Another objection is, what security wee may expect from the Natives, who looke upon us as Intruders upon the Land of their Nativity, and seeing the South of Virginia in like manner to be possessed as the North, whether they will not in all probability attempt what ever rage, malice, and treachery can dictate to them to oppose the beginnings of such possession to our extirpation, to which they will be more enabled (say they) since wee are at the first seating not likely to be so numerous, or so well fortified to resist them, as in the North of Virginia, where already they have committed two massacres notwithstanding the length of years to secure the implanters, and their large numbers.

Wee should attribute too much of the Bug-bears to the Indian armes, to believe that 10 of our men well appointed are not able to give law to their too aided with all the advantages of animosity and revenge, to which by nature I must confesse them prone, but their cowardise is so great, that they never act any thing but upon the foot of anticipation or security, a nights march and the dawning of the day are the only opportunities which they take to revenge former hostilities upon their sleeping enemies: he which considers the

the desperate security the English then lived in, the fatall enter-
course to the admission of them into their houses, into the heart of
all their plantations without any jealousie (I had almost said discre-
tion) will rather admire they were not totally massacred; then but
in part attempted; and yet to shew the invincible baseness and
Cowardise of those Savages, then when in the heat of their revenge
and height of blood, fury, and successe (when all Cowards but them-
selves are irresistibly desperate and pushing on their fortune) one
man that was master but of a hart and pitch-fork, hath been known
stave off and affright ten of those assassins; nor were any that
had the generosity to oppose, or the discretion to keepe good their
houses massacred by them.

The baseness of these incomparable Poltrons considered, what
cause should there be to feare them? yet to shew how those which
through ignorance or doubt of their attempts may be sufficiently se-
cured, these remedies have been proposed and are resolved upon
to remove all future attempts of that nature.

Our first seating will be upon as pleasant Islands as eye may de-
light, into which all access must be by water. The Indian (first
bought out of those Seas, which a most inconsiderable price will
purchase and prohibited fishing there, with a severe punishment
to all those who shall against such prohibition appeare with their
Canoas upon the waters) cannot assemble upon the main to out-pre-
judice, or gather together their Canoas without our notice; besides
a small thing will buy spies amongst themselves to discover all such
practises; a knife or a hatchet will make them betray their neigh-
bours, or which is more, their kindred.

When our numbers (by the blessing of God) shall enable us to
grow upon the maine, the same price which bought them out of
Islands will purchase them out of the continent (I meane such a part
of it as will sufficiently serve 100000 Inhabitants) in the bounds
whereof no Indian shall appeare without an uncountrefaileable mark
of permission, and spies used as before, we may make use of their
intelligence concealing the Authors, which will make those so
discovered attribute to miracle what we receive by information;
and peradventure enter into a superstitious belief of our presence
of their machinations, which will deter their attempting the like
for the future. *Adieu*

Another objection which is usually made, whether this part of Virginia may not be too hot as the North of that Continent is too cold, considering the constitution of the English not proper to endure it, the extremes of either being alike distastfull.

Though it be certaine that all over those Countries drawing near the Center of the Sun a constant Brise arises and continues from 9. to 3. with a great mitigation during the violence and height of the Sun, and that during those intervalls, servants are so indulged as not to labour without doors, yet it is certain that the violentest of heats in that Southern is not hotter then some dayes which we seele in England.

And though ancient Philosophy may stumble at the doctrine (able to make reason herselfe almost bleare-eyed) yet those no lesse signall experiencers of the modern will tell us, that the causes of moderation and habitability of those regions proceed from that which imposed upon our Patriarcha of learning, who upon favourable conjecture that the (supposed dangerous) neighborhood of the Sun, and the rapid transit of the celestiall bodies, with the perpendicularit of direct rayes could not but perpetually exile all cold and moisture as non-naturall and foraine to their immediat residence. Neither had reason any allegations to the contrary, till experience opened its eye-lights by this demonstration, for moisture is never more violent in those (which we call torrid) regions then when the Sun is in his nearest visits, from hence arise winds and impetuous showers daily, from hence the Sun having (in a degree of debauch) caroused too much in his spacious and sweaty journey, over the Ocean does here discharge it, whereas in his absence he receives no more of those moist vapours then he can temperately and healthfully concoct.

Besides, these frequent showers do not only coole and refresh the otherwile parching earth, but adde as much to its fatnesse and improvement, as the inundations of Nilus, Niger, and Zaïre in Africa, and makes the earth invulnerable against the Sun's hostility & arrowy beams: and as in an Alembick a fire of heat and violence enlargeth the quantity of vapour, which stilled as it were and stiller are converted into waters, but the fire being but moonly eager, drinks up those vapours in their exhaustion: so the Sun in the greatnesse in the Giantism of his strength, only exhales (not digests),

gests) that quantity of vapours which he is inforced to disgorge in showers, which draughts of his are in his lesser heat in a more temperate quantity imbibed and concocted.

Nor deserves it a lesse part of consideration, that in that part of the world in which there are so many unbounded Gulpha, such immense Rivers and inlets, the vapours and exhalations cannot but adde coolnesse and moisture to the neighbouring Elements of earth and aire: and which is an indisputable reason the almost equall length of dayes and nights dividing perpetually the time into equall portions causeth a lesse heat then presented it selfe to the consideration-slumber of the ancients, which is confirmed by the Philosophick Poet in these Verses.

*Quodq; die solis violento in candore aestu,
Humida nox reficit paribusq; refrigerat horis.*

Nights what e're dayes burn with o're heated powers,
Coole and refresh by their length-equall'd hours.

Joyne to this the plentifull descent of Dewes greater then unexperienced imagination can comprehend them, and in dispensation of moisture equall to petty showers becalm the dayes with coolnesse and fresheesse, which added to the neighbourhood of such an unfathomed depth, such an unembraceable greatnesse with their spacious fluxes resolve the heated aire into a healthfull moisture: But nearer the Poles the continuance of the Sunne, the almost no nights, and long lived dayes make those parts more insufferably hot, then nearer an equall division of night and light, and this cause makes the Summer hotter in Russia then in England.

I had not dwelt so long upon this discourse, but onely to show that if the Centre and head-quarters of the Sunne perpetually assigned betwixt the Tropiques be capable of coolnesse and habitability: What shall Virginia a Region as fortunately and temperately seated as the noblest Countries under Heaven expect of moderate heates, and a by-these-infertiled surface?

To those other Questions how people shall transport themselves if of fortunes? how the lesse able be transported? what conditions they are to expect? I shall not doubt but publick bills will make manifest to them, and that speedily. For the other what meanes to live there? what way of improvement upon meanes? the book is referred unto for directions: But if that appeare unsatisfactory (that

(that and all things humane being subject to failings) I owe too much to my owne and that Countrey, not to give them further satisfaction to the best of my knowledge: And if they please to collect the Stationers name and residence from the Frontispiece of the Booke, I am confident he out of his humanity and good affection, will either signifie to them where I may prefer my addresles to their information, or where I shall be to attend them, and withall contribute my best knowledge in what may be usefull to them, or bring them to such of higher quality as may give them plenary satisfaction.

It is my opinion (but the more ripe judgement of others) that this Countrey well husbanded, and peopled, will in regard of its variety of Staples, be such a constant intercourse of Traffick to our Merchant Adventurers, as to free them totally from all those dangers which they now groane under, either by open hostility of knowne, or under hand dealing of private Enemies. Trade will be so secured among our selves of all those Staples which France and Spaine sell us with a hand full of exaction and causelesse expostulations, that nothing but the casualties of the Sea will contribute to cast down countenances upon the Exchange or making our Merchants Bankrupt.

And that this may want no poore contribution of mine: The Reader will be pleased to take notice that a booke fully discovering the whole mystery of the Silke-worme, the whole art of the Vine, and the conversion of the Sawmill to infinite other as profitable uses, will shortly be published, in which the Authour as in this will reckon is amongst his happineses, if he can at all be avaylable to private instruction, or the publick benefit.

VIRGINIA'S

Discovery of
SILKE-VVORMES,
with their benefit.

AND
The Implanting of MULBERRY TREES.

Also
The dressing and keeping of Vines, for the rich Trade
of making Wines there.

Together with
The making of the Saw-mill, very usefull in *Virginia*,
for cutting of Timber and Clapbord, to build with-
all, and its conversion to other as profitable Uses.



L O N D O N,
Printed by T. H. for John Stephenson, at the Signe of
the Sun, below Ludgate. 1650.

Discovery of

THE NEW WORLD

WITH

A
HISTORICAL
NARRATIVE
OF THE
DISCOVERY
AND
CONQUEST
OF THE
WEST INDIES
BY
CHRISTOPHER COLUMBUS
AND
ALFONSO ALONSO DE ERASMO



To all the VIRGINIA Merchants,
Adventurers, and Planters.

Gentlemen :



*HE unhappinesse to be amongst the low-
est of men, for parts and fortune, can-
not hinder mee from the satisfaction
which I receive in my selfe, that none
is possessed with a more eager passion of
contributing towards the advancing
Virginia to that degree of felicity
which the bounty of nature, richnesse of
soyle, and temperature of Climate designed her to: and were my
power but of as strong a wing as my inclinations and desires,
that above-example Countrey should be placed in such a Zenith
of stability, wealth, and glory, that it should behold all the
other Nationall happinesses of the world in a Sphere beneath
her; and her Merchants Adventurers and Planters, like so
many Load-starrs to conduct Mankinde into an innocent O-
cean of unsatiable wealth of unrocky prosperity.*

*No Countrey under the Sunne is lesse ingratefull then
Virginia, if she be but justly courted, but to Complement a
Virgin for her affection by breacking smoake in her nostrils,*

to expresse our Civilities by Vapour; and for all that vast Dowry of spaciousnesse, wealth, bounty of aire, and plenty of provisions, to proffer her a joynture of Tobacco, is a Complement indistinguishable from incivill rudenesse.

What Riches may not the Silke-worme, Vine, Olive, and Almond afford us? By these noble undertakings wee contract China two thousand Leagues nearer to us, and are not troubled though Spaine and Italy were remooved five thousand more distant from us: and if wee could not satisfie the implacable curiosity of our Senses without the Easterne Spices, it is without dispute, that what every Orient hath of Aromatick, would grow without any deterioration in this incomparable Countrey.

Yet if, by some occult propriety of nature, these Spices, and Gummes should not prosper with that successe in the Countrey to which they are onely adoptive, as where they are naturall: The South Sea flowing upon the skirts of this gloriously apparelled Virgin, would not onely furnish us, but (through our meanes) all the Westerne world with whatever the Philipines and China have in their brow, or bosome: which that it may be discovered, a Publique encouragement from the Merchants here, and the Colony there, would awaken all spirits which have any scintillation of Honour, or industry, to undertake the employment, effect it undertaken, and by the effect raise an unperishable structure for their owne glory, perpetuated by the publike felicity.

The greatest defect that Colony can with consent complain of, is their want of shipping, and the greatest with which others finde themselves perplexed, is the want of industry to build them. If Virginia had not as stately Timber as any other Region whatsoever: if it had not a Soyle naturally inviting them to improve her in Iron for Gunnes, Anchors, and

and other conveniences; in Hempe for Cordage, Flaxe for Carruase, and Pine trees for Mast: this defect might be allowed for reall: but where all these concenter, it is as unreasonable to complaine, as for a man seated at a Table covered with excellent provision, to accuse his fortune for suffering him to perish with hunger, because his meat is not digested in his stomack, without putting his hands and teeth to labour.

I could cordially wish that there were such quantity of cleared ground in Virginia, that every one at his first arrivall might fix upon the Plough, that the so much discourfed of Staples of wheat and Rye, might be brought to an absolute ripenesse of perfection: But to imagine so many millions of trees of a facile removall, or that old Planters knowing the benefit thence arising, should part with them to others, and seeke new uncleared grounds for themselves, were meerey to dreame of impossibilities.

But the Vine, Almond, and Olive, may be set where the tree is onely barked about to hinder it from leavings, besides if there were a necessity to have absolutely cleared grounds, (which reason it selfe cannot imagine,) yet foure Acres of ground so cleared for the Vine, will returne (by much) more profit, and lesse trouble, then twenty Acres of wheat, at such rates as they are prized in the common estimation.

But since this profit reverts to the Purse without the toyle of eradicating trees, as great emolument, as if the ground were altogether treelesse, to what purpose should we court sweat and affliction? or increase our miseries without any addition to our happinesse?

Gentlemen, the happinesse of this Nation depends upon your constancy and prosperity, if you seriously erect these staples, wee shall be free from the imperious usurpations of forraigne Prin-

res upon your estates, and shipping, from the rapine of Pirates upon your lives or liberties. The decayed number of our shipping may be resupplied by encouragement of Carpenters of all Nations, to make use of those materials which the inimitable liberality of this Countrey graciously presents you with: all Staples (diffusively spread in other Regions) will meet here united, and we shall arrive to that degree of happinesse, to make our intrade by much exceed our exportations: for the compleating of which, if such an inconsiderable, and lost thing as my selfe, could be any way instrumentall, I should as cheerfully hazard my life in the employment, as I now subscribe my selfe,

Your ready, faithfull, and

most humble servant,

ED. WILLIAMS.

The



*The Discovery of Silke-wormes ; with
their benefite, and implanting of Mulberry trees.*



HE Mulberry tree, yielding the sole food of this excellent Worme, must first bee provided for, whereof there are Myriads dispersd in the wide Continent of *Virginia*, which may bee collected by transplanting, grafting, or nursering.

For transplantation there are infinite advantages both of well-growne and springing Mulberry trees, which may with much facility be removed, and with great felicity thrive upon such a removall, of which experience can afford frequent examples.

The Grafts must bee chosen from excellent good Plants which expresse a large fertility, and bee something large of themselves, by which election there will bee a greater certainty of the goodnesse, and a more speedy expectation of growth in those Grafts, which thrive better when grafted one upon another, then upon the Chesnut, Apple-tree, Elme, White Popler, or any other, which if they are not mortally opposite, are however praternaturall to the Silke-worme.

The Nurseries have so much of tediousnesse and difficulty, that I shall hardly advise to put it in practice; yet to those who have a stronger credulity then my reason can perswade mee to, I shall offer the sole expedient of effecting it, if that may bee called aptly an expedient, which hath so little of expedition in it.

Let the Person desirous to make a Nursery, observe, and gather such quantity as will suit with his necessity, of the ripest Fruit

B

growing

growing upon those Trees which beare the fairest and roundest leaves: These thus gathered, you must wash in two or three waters, pressing them with your hands, by which means you shall finde the expressed seede in the bottome of the water: I accede more to the sawing of the Mulberries whole without such expression; how ever, either the Mulberry entire, or the seede may bee sowed after the manner following.

A bed of fat earth being digged, husbanded, and the Mould brought into a small Powder, must have strait Rows or Lines in Furrowes, all halfe a foot equally distant every Furrow two inches deepe, and foure broad, this distance may bee something larger that an intervall may bee made to the Weeder in the weeding of such things as may hinder the Mulberries growth by participating in its aliment.

A great care must bee had to water it often for the first yeare, if the weather be dry, the succeeding yeare you may pul up and transplant your Mulberry trees into another ground more at large, viz. at two or three foot distance, which must bee not retransplanted till the growth arise to some six inches in the circumference, at which bignesse you may remove them to the ground designed for their constant fixation, leaving betwixt each Tree a distance of fixteene or twenty foot; that the too much vicinity may not make the extending branches mutually inconvenience either by exclusion of a full Sunne, or wound themselves by intertangence of one anothers. In such warme Countries as that of *Virginia*, the Root must bee preserved coole and moyst, by a deeper implantation then is usuall in colder Regions.

For the election of your Plants or Sciens you may take notice of two Families, or Races, of Mulberry trees, the black and the white, discordant in Wood, Leaf, and Fruit; onely having this in common to spring later then other trees, as never emitting their leaves till all apprehension of cold is vanished, the black Mulberry is not subdivided into any other species having the wood solid and strong, the leaf large, and rude in the handling, the fruit black, great, and acceptable to the Palate: But there are three apparently different species in the white, distinguished onely by the colour of the fruit, namely, white, black, and red: Yet is this fruit by
much

much lesse gratefull to the palate then that of the black Mulberry. No other distinction besides, the colour of the fruit discernes them one from the other, the Leaves of all three being of the same meane greatnesse of the same smooth feeling, the wood of the same internall yellownesse, almost as firme as that of the black Mulberry.

But the silke taking his quality from the leafe make us lay aside the black Mulberry tree, since the bottomes from thence are too grosse and heavy, whereas the white Mulberry makes silke fine and light, to temper which many feed the Wormes with two sorts of meates by distinction of times, *viz.* at the beginning with white leaves, that the silke may bee fine, in the closing, with black to fortifie it, and make it weigh: Yet this though it have an appearance of reason at the first inspection, rarely answers the expectation, the very alteration of the meate as from that which is more delicate, to that which is more grosse, being disagreeable to the nature of the Worme, who must shew that diminution in the quality of his silkes which hee feeles in the impairing of his nutriment. Others make a contrary application of leaves by a more (imaginative solid foundation) which is to begin their dieting with black, and conclude with white; which cannot succeed better, for the black having disposed the matter of the silke, the white leaves after administred have no power to alter that seminall disposition.

Wee shall therefore fixe upon it as a Principle of Nature, not to vary the nourishment of this industrious Creature. If wee begin with the black Mulberry, the continuance of it will bee necessary. If the Ground you possesse bee already planted with black Mulberries, it is so much losse of time and expences to replant white: But if wee are to commence a thing *de Novo*, every mans reason leading him to chuse the most profitable, and common experience telling us that the white antecede the black ones so incredibly in the poynt of Maturation, that six years of growth advance not so much the latter as two the first; it were an act declaring Bethlem for Dictator, not to prefer the most speedy and profitable before the tedious and improper commodity. Besides which Empliment the Branches which by that speedy shoot they bring

(4)
forth will bee usefull for propagation of that tree to infinite Num-
ber.

There is yet experimentall election amongst the white Mulber-
ries, Some affirming that the Leaves of those trees which emit the
white fruit are fittest to bee assigned for this nourishment, which
they fortifie by this reason; That Pullett and Swine doe most de-
light in the white, and never eate the red and black but by con-
straining, a conjecture not altogether inrefragable; for why may it
not bee controuerted that Pullett and Swine being a greedy Gene-
ration, may rather ballance that which is most grosse and fullsome,
as best adapted for their Palate, then that which is nice, and suble,
and best according to the delicate tendernesse of this Creature?
Others who have their owne experience to fortifie their assertion,
commend the white Mulberry bearing the black fruit, the colour
demonstrating a better concoction in the fruit, and consequently
in the leafe then the others.

But (which wee must bee extremely curious in) wee must ex-
pell from our yard all Mulberry trees bearing leaues too much inden-
ted, which, besides that, it is an apparent signe of small subsistence
and uncompleted nature, is more defective in quantity and quali-
ty of nourishment, then that which is lesse interruptedly circular:
Yet this may easily bee remedied, if you ~~invalde~~ such trees in the
Bud, or *Elsarison*, having neede of such freedom: the profit
there arising being very considerable for this kinde of nourish-
ment: For by this course that inconsiderable quantity of worthless
and hamelick leaues receives a happy melioration into an abundant
plenty of substantiall and nutritive nature. Nor is this transmuta-
tion improper, for any other Orchard Plants which will succede
to your most advantagious expectation, and all Indomestick and
wild trees may by this bee made capable of a most happy cultiva-
tion. This infranchizing may bee practised to the answer of your
desires in Mulberries of all Ages: In the Elder, on their new shoots
of the antecedent yeare then lopped; in the yonger upon the smal-
lest trees of the Nursery. But to graft these trees in the first fra-
son, that their growth will permit it, is most opportune and profi-
table; for by this meanes your Groves of Mulberry will bee in-
tirely delivered from all apprehension of *Jeune Acrilly*, or insub-
stanciall

And still deficiency: Nor can ever you have a want of supply, if
 you constantly maintaine a Nursery of such Grafts, not from the
 seeds, but from the shoots and branches of your best trees thus
 propagated to an unperishable infinity by couching them in the
 ground, and the trees encreasing by their replanting are con-
 stantly furnished with Leaves of an excellent sweetnesse and great-
 nesse, exquisitely abundant in nourishment, and consequently ex-
 empt from all the inconveniencies which walke hand in hand with
 an ingratefull wildnesse. Having described what Trees, Grafts,
 and Nurseries are best conducent to our mystery: let us next di-
 late of their most proper soyle, and best order in planting.

The best soyle and order for planting the Mulberry.

FOR the soyle it must bee chosen in particular much like that of
 the Vines, inclining rather to dry then moist, light then heavy,
 sandy then clayie; for those which opinione themselves that a
 fat ground is inconvenient to Mulberries, as supplying leaves of
 too grosse and unsueteable aliment; The Objection is pritty, but
 under pardon scarcely solid, neither am I capable of any reason to
 the contrary, why a rich soyle should not emit the growing Trees
 with a greater waturation and bignesse, then a leane Manation,
 where the tender Planes are even starved with the sparseness of di-
 stributive moysture and aliment: Yet to prevent the too grosse
 substance of the leafe after the tree by the advantage of a rich nou-
 rishment, hath arrived to a competent greatnesse; the order
 which wee shall prescribe in their planting will admit the Plough
 amongst them, where cultivation will easily take off the soyle from
 all exuberancy of fullsome ranknesse. The soyle which is full of
 Springs, Lakes, Rivers, or (which is worst of all) Marshes, is par-
 ticularly to be avoyded.

The manner of implanting them would require a distance of
 foure fathomes or more, which in *Virginia* where wee labour not
 under a penny of ground, may bee something more spaciouly en-
 larged; the Reasons why this extent of distance are: First, the
 intermixture of spreading Branches, where by their coningency
 they violate and mutually wound themselves will bee avoyded.

Next, the Sunne hath a more unimpached immission and distribution of his Beames, with which this tree is most particularly delighted. Lastly, this largeness of intervalls permits a free passage for the Plough, to take off all luxuriance of rankness, which too much inspissates the leaves, which must feed this admirable Creature.

But of such Graines as may with least impairment bee sown under the Mulberry trees, Oats and Pease are the most proper, which during the collection of the leaves may with very small detriment bee trodden upon (the season commonly falling in April and May, when their blades are backward) nay the very compresure of the Earth makes them afterwards arise more strongly.

I approve much more of interplanting the Vine, but (which I conceive the most convenient for *Virginia* is) the setting of the Indian Potato hath the most inestimable benefit, the Potato having such a happy multiplication of and in itselfe, that whilst there is but a string of the Root left behind in the earth, the species will bee renewed. Besides the excellency of the food, whether for man, or (where such a vast abundance may forme introduce a satiety) Cattle will bring along with it an inestimable advantage; whereas Cornie may too strongly impoverish a Ground, and the Vine it selfe when it comes to its ripest excellency, will want the compleat comfort of the Sunne beames to give fruit a well concocted maturity, the Mulberry like an Ambitious Grandee, engrossing all that favour to himselfe by his prevalency of height and greatness.

Nor should wee bee too curious to plant the trees one over against the other exactly opposite; but (still observing for beauties sake to set them in a right line) rather (one against the Intervall of the other) that so the Sunne may have no interruption from any Angle, to warme, comfort and enrich this tree, which aids the production of so many incomprehensible Miracles.

The order for collection of the Leaves.

THe order to bee observed for collecting the leaves should bee precisely insisted upon, that the trees may bee of longer and more

flourishing duration, and the food of a more curious and unsoyled nourishment. It is a truth not to be denied, that the disleaving of trees is extremely prejudiciall, and in some irrecoverably deadly; the reason is their extraordinary scorching, by being left without any shade of protection: But the Mulberry being (as it were) destined to this worke which it naturally supporteth, more imprudentially endures this temper of disleaving than any other trees whatsoever. But for the obviation of this inconvenience, it will bee absolutely necessary for our Master of the silkworme, to have such a proportionable number of trees, that the hulse may alternately repose unpluckt every second yeare. This diligently put into practice, will make your trees continue verdant and vigorous for many Generations.

To gather them with both hands leafe after leafe, is confessedly the most proper, but yet withall the most expencefull; for the multitude of hands which such a circumstantiall labour would exact.

The other way of gathering them with stripping them from the branches, is without doubt extremely nocent to the tree, and worm: to the tree by unbarking, wounding, and perishing its branches. Nor is it lesse detrimental to the Worme seeing this disorderly collection corrupts and sullies the leaves, which this delicate Creature perceiving, either rejects them, or sickens upon their reception by bruising the leaves, and expressing that which is the life of its substance, the juice, and this commonly with unwash hands, which leave the ill odour unremoveable upon them.

The removall of these inconveniences is easily effected by following the course they practice in some parts of Spaine, which is by clipping the leaves from the branches with a sharpe instrument, like a Taylors sheares; by this way you disleave many stalkes at once, which falling into a cleane sheete spread under that tree for the purpose, seperating afterwards the leaves also, such as are found from unsound, such as peradventure have much of the stalke, from those which are nothing but leafe, (the stalke being hurtfull to this tender Creature) and administred to them the Sunny side of the leafe upward is the most commendable practice of gathering and feeding that hath hitherto been delivered.

The

The leaves of the old Mulberry are to bee much prefer'd before those which are not come to an absolute perfection; the age of perfection in the Mulberry, we reckon to be accomplished in seven or eight yeares, as to soundnesse of nourishment; not that they grow not after, but by that time it is growne powerfull to concoct such succulency as might before over master it.

The trees disleaved must by a diligent hand be pruned immediately after the last collection; what ever is broken, wounded, or made unprofitable must bee carefully cut off. The extreames of all the branches must be top'd a little with a sharpe pruning knife, which is an invitation to nature to send forth the next yeare more vigorously. But whether it be in gathering the leaves, or pruning the trees, it must bee our principall care that they be intirely beared, the omission of which, by not taking all the leaves off, turns back the liberality of the repeating Spring. This observation hath been grounded upon practise, made so successfull by experience, that it hath been found, that trees after such culture and disleaving, have within a month attired themselves with such a new border of leaves, that the former imbalding them hath been imperceptible.

Which induces me to believe a former assertion, that it is possible to have a second silke harvest by this means, and why not equall with the first, I know not, since the seed is more youthfull and vigorous then that of the yeare preceeding growne feeble by its continuance.

The rains if they fall about the time this noble creature draws unto her perfection and period, is by much more strangely prejudiciall, then when they are in the greatest of their feeding, the wet leaves occasioning them many desperate diseases: the usuall way of prevention is to have a provision of leaves before hand, when there is any jealousie of rainy weather; but this provision must be laid in a cleane dry place which is fresh aired, and that we may remove all dangers of contracting too much heat, to be turned often, which course, although the Raine should not oppress us, yet is it of great conveniency, not so much out of apprehension to be necessitated, as for the quality of the food, it being much better after fourteen or fifteen houres resting in a place cleane and drie, then
when

when fresh from the tree. But if you are surprized by an unexpected season of wet, take those Mulberries which you intend to lop the next year, (and the Mulberry would be lop'd every ten or twelve years, which revives and strengthens the tree with a new youth) and cut their branches which hung up in a drie corner, either of your house or barn, or any other coverture in airy places, will soone have their leaves drie, better condition'd, and of more efficacy then any leaves set to a fire, which is too suddaine, or to winnowing by a winde artificiall and unnaturall.

The Mulberries chiefe profit consistin in the leafe, we must be carefull to lose nothing of this revenue; which considered, wee should delay the disheading or lepping of them till the Wormes have done feeding, which would be about the latter end of *May*, or the beginning of *June*, and although by the disbranching of them in such a season, we cannot expect such large returning shoots as those which were cut in *February* or *March*, the distance of time being materiall in their growth, yet the profit of the leaves being double, very well answer such inequality. The Mulberry being of so franks and plyable a disposition, that notwithstanding its amputation in unseasonable Moone and weather, no injuries shall hinder him from Regeneration.

Yet are not these advantages (no necessity obstructing them) to be omitted by any which are not enemies to their owne profit. The Mulberries in the increase of the Moone, pouled, or lopp'd bring forth their young shoots long without spreading Branches; in the Wane short, with many little Branches crossing the principall. To reconcile this (the election of the time being in our power) the Mulberries sated in leane grounds, are most properly disheaded in the new Moone: those which are planted in rich ground, in the last quarter; so will those in the leane soyle emit shoots as long as the barrenness of the place will afford them: and those of the latter, through the benefit of their seat, conveniently regaine that which they would not easily have done, cut in the increase; For those aspiring branches, were they not restrained by the counter shoots who participate with them in nourishment would by reason of their unwieldy length, be forced to bend downwards to the deforming of the tree from the shape of a Mulberry into that of a Palme-tree,

tree, which is not to bee feared in the rest, by reason of the leanness of the ground, forbidding all abundance of shooting: Wee have provided for the feeding of this little and great Artificer, let us now expresse an equall care in his lodging.

The lodging of the Silke Wormes.

TIS a vanity to expect emolument from this mysterious Creature, if wee sort him not with a lodging proper and agreeable to his nature, who can with no lesse disprofit bee ill accommodated in his habitation, then in his nourishment, who to show a particular affinity with the noblest of Creatures, Man, makes his affection of habitation equall to his. Spaciousnesse, pleasure, healthfullnesse, distance from offensive vapours, damps and humidities, warmth in the extreames of colds, coolnesse in the extreames of warmth. What ever wee naturally desire and abhorre, does this Creature by the prosperity or infelicity of his labours show a most experimentall resentment of.

His station therefore must bee in the meane twixt the top and bottome of a foundation, the first being too much obnoxious to heats or windes, the second to colds and Damps. The Platforme therefore of your building his station must be so contrived, as to have his Basis three or foure foot above the ground, nor ascending within an equall distance of the Tiles. A Fabrick (saith *De Serres*) of seven fathome in length, three in breadth, and two in height, will entertaine with ease the Wormes enlivened from ten bunces of seed: this proportion may be raised according to your seed. In VIRGINIA these may be of very sudden erection, Nature hath furnished that excellent Countrey with materials, to invite all who have the desire to attempt it.

That the aire and winds (if coole and dry) may have free passage to refresh these laborious spinners, who near upon the perfection of their worke are upon the point of stissing. (the season) and the abundance of the silke wherewith they are filled, both cooperating thereunto) Wee must have windows opening to all Angles to receive unsuspended insigillations in extremities of heat, and warming transpirations in immoderate colds; Yet with this

Proviso.

(11)

Provide, that these windows bee fit not onely to receive any favourable aire, but to expell all noxious vapours; and because this Creature loveth any thing that is white and luminous, it will sort excellently well with his disposition and safety, to parget or plaster the inside of the house very well and smooth, both to satisfie the eye and preserve him from the danger of Rats, which cannot climb up such a wall, though a principall care ought to bee used that the severall stations on which they are lodged, bee remote from all fixures to walls, which might give Rats and Mice advantage.

To build the Scaffolds containing these Wormes: Many Pillers of Carpenters worke directly squared, shall bee perpendicularly erected, from the ground to the ceiling, to support the Tables which crossing the pillars upon little joynts sixteene inches distant one from the other (except that from the ground which must bee 36 inches.) Upon these Tables doe wee lay our Wormen, but their boards must not bee equall in breadth, every table as it exceeds in height, being to bee narrower then the next below by foure inches, and the highest approaching the ceiling, to bee narrowest of all. This Pyramidicall forme is of most beauty and safety to the Wormes; when wandering upon the edges from one end of the Scaffold to another, seeking a fit place to vomit their filke, they fall in such a precipice from the higher scaffold to the ground, that they break themselves in pieces. But by this means falling but from one scaffold to another, the smallness of the distance contri- butes to their preservation. The breadth of the most lowest table shall bee limited even to this proportion, that easily of one side a man with his hand may reach the middle to attend the Wormes; as for the ascending scaffolds their continuall diminution makes the serving of them of greater easinesse.

A Room of any capacity will admit severall of these scaffolds (distinct from the wall for reason before recited of Rats) and also that the attender may come on either side of the scaffold, such space being alwayes to bee left betweene their position.

These scaffolds must bee made of an unsuspected firmenesse, to prevent the falling downe of any part of it, or the whole either by the ladder which the Keeper ascends, or the weight of the Worms

(11)
themselves, when once growne great and heathy.

To ascend these scaffolds some make boards about them, as it were by Galleries, others have their getting up to them by little staires appropriated to this; others by formes. I approve of none more convenient then a light ladder which is small, and possides but one place.

The timber fittest to employ in the tabulare of this scaffolding is usually firre or such light wood: In VIRGINIA I apprehend none fitter then Cedar or Cypressse, because of their delicious odours.

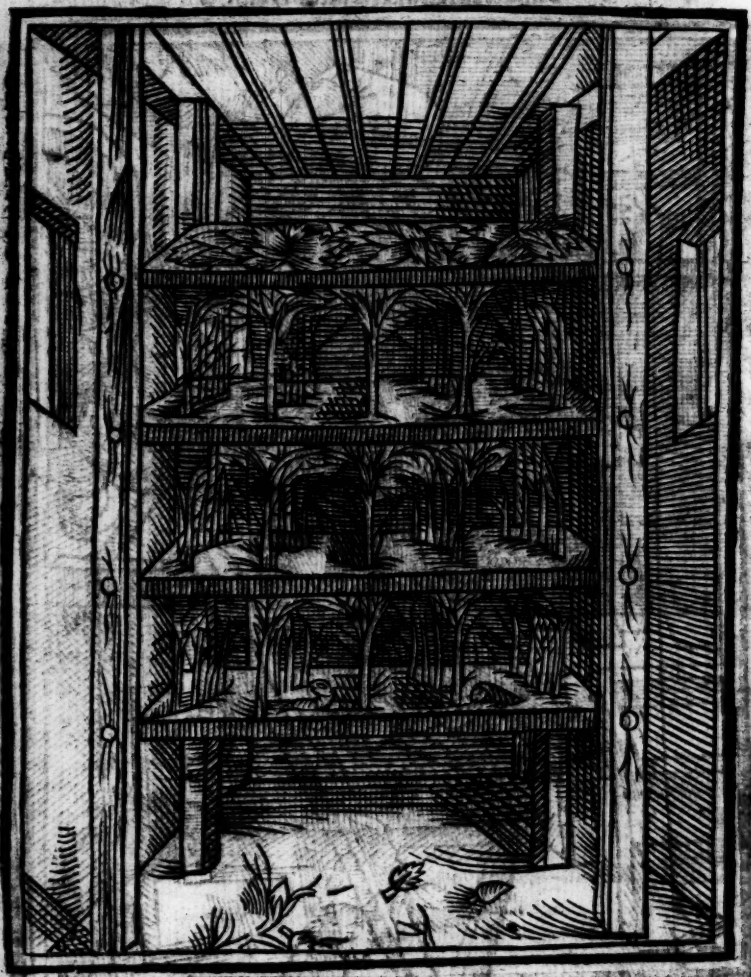
Wee have already spoken of such meanes as may refresh the overheated worne; rests now to deliver an experiment to warme the Aire, this Creature being no lesse Enemy to cold in the beginning of his apprentissage, then to heate when hee is ready to goe out of this World Master workeman.

After having built your house for worms; let there be a hole pierced through your wall, where you must make an Oven, the mouth whereof must be on the out side of the house: Then before you make it off, take pots like flower pots, but such as will indure the fire, and lay them with the mouth side of these pots tending inwards towards the house, and the bottome within the Oven, lay these thus sidelong at an equall distance, and worke up the Oven with the pots incorporate therein. This done you may make a fire in the Oven, which by the benefit of the pots conveyes a litle heate to you without any inconvenience of smoake. To make this heate the more agreeable to the Worms, and to keepe the house in a temperate and inoffensive warmth, you may put into these pots branches of Rosemary, Thyme, Roses, Juniper, &c.

This Figure sheweth the order for sinking the Tables on the Seffolds, to lay the Leaves
on, for feeding the Wormes.



This Figure sheweth how so place the Rods, between the Tables, for the Wormes
to clumbe up, and spin their silke.



This Figure representeth the Bagin^e, to wind off the silk from the Coda, with
Furnaces and Chawkins necessary thereto.



This Figure portrayes the Cods, with the Butterflies come forth of them, to lay their
 Egges upon black Serge, Chamlet, Tammy, or such like Stuffs, as in this Treatise is
 shewed.



The election and use of the seed of the Silke-Worme.

There is a great deale of Reason, that we should be curious in the election of our seed; and tis not more Poetick then Philosophick, that of HORACE:

Est in iuvens ut in equo parum,

Virius nec imbellis feroces

Progeniens aquilam columba.

What can we expect of generosity in that which has a disposition to degenerate before produced: of all the seeds proper for the vivifying this animal, there is none more excellent as yet arrived to our knowledge, then that of Spaine: this De Serres affirmeth, though he seeme to be in a kinde of hesitation, whether that of Calabria march not in a higher degree of reputation, as yielding more abundance, and of equall hardnesse with the Cod of Spaine; yet this is certaine in nature and reason; that seed transported into other colder Regions, can no way lay claime to a parity of thriving with that continued in its owne Climate; and I doubt not but if the South of VIRGINIA, where the Silke-worme is aboriginally native, were duely inquired after, the Seed of that would have a particular excellency, to which all the European Nations must give the glory, the right hand of preheminance.

But leaving this to the scrutiny which shall be made by time, and experience, we must grant the prime opinion to the Spanisht, which however it thrive in France for foure yeares, yet afterwards it degenerates extremely, so that it must every foure yeares be renew'd, for within that circle it suffers a manifest declension in goodnesse. Comming from Spaine it is of a dark tawny colour, after certaine generations, gray.

To prove whether the seed be dead or not, you must experiment it upon your naile, that which breaks in cracking, casting forth humor and moisture, you may assuredly esteem for good, the other is to be rejected. The smallnesse of the Spanisht seed increases the number of Wormes, for which it deserves a particular praise.

No seed of above a yeare old is any further profitable, till you

put them to Hatch; you may preserve them in Boxes thrust amongst woollen cloathes in a Trunke or Chest, and let the Chamber where such Trunkes or Chests are, be now and then aired with a fire, to the intent they being rather warme then cold, may be pre-disposed for a hasty production when the season of the yeare shall invite you to put it into practice.

To imbibe or steep the seed of Silke-wormes in the most generous Wine you can procure, is an experiment that hath alwayes answered with a happy successe; for this not onely discriminates betwixt the good and bad, (the good alwaies subsiding, and the other floating) but addes legitimation and strength to the approved ones, making them come forth free and fortified, and causeth them to hatch almost all at one time. After the good are taken out, they must be set to drie in the Sunne, or before the fire, layd upon very clean paper, covered with white linnen, or smooth paper, lest the heat might bring it prejudice.

The vivification of the Seed.

THE Spring being come, and the Malberries budding, it will be seasonable to put them to hatching, which (all other wayes omitted, as the keeping them in a Boxe, in ones pocket, between a womans Breasts, &c.) sorts best with Reason and convenience, performed thus, *viz.* That the seed removed from its first vessell, shall be committed into a Box lined with Cotton, over which you must put a white paper, which must separate the seed from the Cotton, then cover the seeds (being not above halfe an inch thick) with a little bed of Tow, over which Tow you are to lay a paper pierced very thick with small holes, much about the bignesse of the tag of a point; over this paper you shall lay some Malberry leaves. And this is the preparative to hatch them.

To bring them forth, lay your Boxe so prepared between two Pillowes, which moderately warmed with a Pan every two houres, and after the first three and foure dayes yisiting the Box at every such warming, to the end to separate such as you shall see hatched, who will not faile to creep through the Tow, and pierced paper to the Malberry leaves, to which they will cleave: which to remove,

you

you must draw them out of the Boxe by taking hold of the Mulberry leaves with a needle, and removing them and the Wormes adherent into a bigger Boxe or sieve; with paper at the bottomes, distinguish those of a hasty production from those of a more slow, that the worke may arise more equall. These thus brought forth must by gradations be accustomed to indure the coolnesse of the Spring, diminishing dayly something from his accidentall warmnesse: the first foure daies let them in the sieve covered with cleane linnen continue upon the bed, the curtaines closely drawne, then removed into a warme chamber, close from all penetrations, layd upon ranks close together, that they may give and receive mutuall warmth, allowing them a larger proportion of roome, as they increase in body.

But the most assured way to preserve the Wormes untill their second change in warmth and security from Vermine, dust, or other hostilities of nature, is by a great Presse or Cubbord made with many stages, pargetted or pasted for the agreeablenesse of the odour with Oxe dung, made of firre, or mats, and to draw out at will seperately equally distant foure inches, compassed round about with Linnen tackt to the doores, with paper windowes on the sides and for most doore, to admit or exclude aire after the exigency of the occasion; and heere vacant places being left at first to enlarge them, as they increase in growth may they bee distinguished according to the Dates of their first appearance upon the Mulberry, rejecting all that feed, which is not enlivened before the fifth day, as unprofitable for working by confusion of times, and uselesse by their weaknesse.

Foure times doth this excellent Artist change his skinn, which is the cause of his so many sicknesses. The first sickness arriving within eight dayes from the beginning of his life, is knowne by these symptoms; the head growes bigge and white, and hee hides himselfe under the leaves: To administer any food were need-
less; but that they are not all sick at one instant, so that some must bee gay, in nourish them which have not arrived to, or past over their sickness, which you shall know by their change of colour and creeping upon fresh leaves.

The second sickness arising within eight dayes, or thereabouts,

from thence is knowne by the same accidentals, and must have the same applications; onely now they would bee removed into new, cleane, and more spacious places: The third is in all like the two other, though something more dangerous; heere you must carefully prevent the accession of all cold ayres whatsoever: It may happen that some of these Wormes may grow yellow, which is almost incurable in themselves, and deadly contagious to all the rest; these must bee carefully selected from the rest and ejected. Remove, enlarge & cleanse as before. Eight or ten dayes after appears the 4. change or sickness, & now the recovered Wormes being increased to their full growth, must be removed, enlarged, & cleansed as before.

At appointed houres morning and evening must this Worme bee fed from their hatching to their first change or sickness; from the second change to the third or fourth; they must bee fed three times the day at the least; taking this for an assured maxime; that after the recovery from their last sickness, The very cloying of them with leaves even to the satiety of their appetite, accelerates them to the perfection of their taske; for these curious Vessells will the sooner discharge themselves of their precious inclosed substance, by how much they are the sooner replenished. Nor is there any prodigall improvidence in this; for it hath beene observed that Wormes have eaten neare as much in eight dayes when more sparingly distributed; as in foure when liberally handed to them; so that by such wary dispensation they save no leaves, and lose foure dayes in point of time.

But a particular eye of care must bee had to the quality of the leaves you feede with. No goodnesse of a selected tree being capable to secure it selfe against accidentall diseases arising from the unnaturallnesse of seasons; wherein by extreames of drought or moisture, mildewes, heat drops, and other distempers, all the leaves oftentimes becoming yellowish, spotted, or speckled, declare the nature of that food highly unwholesome and pernicious: Such as grow out of the Sunne in the interior umbragious parts of thick trees are almost as dangerous: Nor are the leaves of the second Spring which shoot afresh on trees already diseased of lesse guilt, through the inequality of their Ages. One banquet of those gives the last repast that your Wormes shall have neede of, a fluce thence

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arising killing them, and easing you of farther trouble, if you account it so to be vigilant over your owne profit.

The most agreeable to all Wormes is to bee fed with leaves of their owne age, and by this the feeble Creature shall meete with tender leaves, then growne strong with leaves, full growne correspondent to both their complexions. The fault of the wet leaves may bee corrected by patience, attending the serener season; but of dry leaves you ought at no time (if you regard your owne profit with a sober providence) to bee unprovided, and the way how to prepare hath beene already delivered in this Treatise.

These precious creatures exact no great expence or laborious care during the first three or foure weekes, being satisfied with little, as most agreeable to the tendernes and smallnes of bodies, and are very well entertained with the leaves of the succours or other branches; from whence for the profit of the tree one should necessarily cut them. At the beginning we go to gather leaves with Hankerchiefs, then with little baskets, lastly with sacks & maunds, as growing to a bignesse to require it, and a perfection to discern it.

That the Gatherers of these loaves should handle them pure and washt hands, wee have already declared absolutely necessary: But the Governour of these chaste and magnificent Creatures must bee Master of an exact purity. The smell of Tobacco is deadly to them: Let his observance forbear it: Let him have a watchfull eye, that none of an offensive smell approach them; all ill breathings upon them, whether contracted by fulsome foode or nature make this innocently noble Creature expresse her resentment by her owne death, or sicknesse. Let him purifie the ranknesse of his owne breath (when fasting) with good Wine ere he approach them, with the odour whereof the worme is highly cherished. Let the Lodging be swept every day, and preserved so by sprinkling the floure with vinegar, and afterwards strawing it with Lavender, Spike, Rosemary, Thyme, and such like of well-comforting Odours. To these we may sometimes adde a perfume composed of Frankincense, Benioin, Storax, and other quickning aromatics burned in the lodging.

Let the Tables be often made cleane and shift d, by often, I meane every third or fourth day at the furthest, at which time the

litter begins to bee offensive to this curious natured Creature; especially with the increase of the heate, let his diligence increase, that no uncleannesse (at that time more then ordinary maligne) cut him from the benefit of his labours.

The litter must not bee taken away by degrees to the trouble of our curious Creature, but all at once; which may bee effected, if you leave at the end of each Scaffold an empty station to place the adjoining Wormes on, whose left station being made cleane is fitted for the next neighbourhood, and thus may all bee removed and shifted by degrees, and a vacant table at the other end of the scaffold remaines to begin againe (as afore) within two, three, or foure dayes at the longest. And thus without carrying far, the Wormes shall bee removed with ease and security, not once laying the finger upon their tender bodies; for giving them fresh leaves at the time of their replaing, the Worme will fasten to the leafe, and the leafe may bee removed with his precious burthen, with no lesse safety then convenience.

It will bee requisite to dispose the tables in such a fashion that they may bee seperately taken from the scaffold like tills out of drawers; for this the easiest and lesse nocent way of cleansing, as preventing the falling of any stench upon the lower tables, and by which they are more suddenly discharged of their filth and ordure, mererly by striking them gently on the floore, which done, let them bee swept and brushed perfectly well. Let the tables on which you put your Wormes after their first sicknesse bee sprinkled with Vinegar or Wine, then rabbed over with sweete Hearbes to delight and encourage them to labour. Some have made tryall, which hath succeeded happily of the smell of Garlick and Onions to refresh them; I dare not absolutely assent to this experiment; but it is cleare as Sunne-shine, that the Worme not onely rejoyces in agreeable odours, but is succoured thereby in his greatch maladies: of which we now intend to discourse.

*The causes of extraordinary maladies in Wormes, and
their cure.*

THe extreames of colds and heates, the too sparing, or too abundant administration of victualls in their severall ages, and a maligne disposition of the leaves are the principle causes of all extraordinary maladies which afflict this Creature. If the inelucency of Cold hath benumbed or diseased this innocent Artiste, the stove or oven formerly mentioned will recover it (the stopping of all windowes, and other admissories of aire cooperating:) To the greater complement of the cure, let the lodging bee perfumed with redolent Gummes, with Wine, strong Vinegar, or *Aqua vitae*. If on the contrary, the torrid violence of heate have wasted the strength of this suddaine and excellent Spinner: The fresh aire admitted at the doores and windowes some brave artificiall Fannes or Ventalls to raise this breath, if too little, or at the last the exposing them upon their tables out of their lodgings to enjoy an uncontrouled and liberall communion of the aire, some halfe an houre before Sunne rising are the proper meanes of their recovery. Those which by a wastfull liberality of their keeper in the tendernesse of their age have injured themselves with over feeding, must bee cured by a two dayes abstinence, and for some two succeeding dayes dieted with a moderation. Those who famished by the negligence of their keeper are almost languishing to death, must bee restored by giving them meate in slender proportion, but frequently repeated, by such a dyet regaining their forfeited appetite. Those which by having fed on yellow spotted, or too yong leaves have contracted a fluxe, and from thence a jaundice and spotted colour, accompanied with black bruffings, must upon the first inspection bee immediately removed into separte chambers, that the change of ayre and dyet may labour for their almost desperate cure, and to prevent a contagion, which from thence would universally domineere. But such Wormes which as an accession to this last disease you should behold bathed on the belly by a certain humour flowing in that part of their bodies, are as incurable, good for nothing but to repay your Poultry,

Indeed

Indeed excepting this last inexpugnable malady perfumes and change of chambers are generally conducing to overcome all diseases and to restore a new health and vigour. But this noble Creature is by nature sufficiently privileged from these diseases, if the unskilfullnesse or negligence of the keeper did not violate this privilege, and by that violation increase his owne trouble.

Nor is this care of the keeper to bee onely limited to the day, the night too must require a part of his vigilance; Mice and Rats then take advantage, and grieved that any Creature should labour for man without their participation or obstruction devour them by Troopes, and the Cat her selfe enters in a league with these her usual prey, to prey upon these poore things, whose innocency and excellency makes them the more obnoxious to their cruell avarice. To remedy this, the house must not bee without continuall Lampes, Bells, and other vaine errors to affright them: The keeper himselfe also, or his Deputy must frequently walke round about his little Army. And lest the Oyle (which occasions divers indispositions, if it fall but in a drop upon these nice Artists) might bee prejudiciall, the Lampes should bee affixed on the wall and the portable lights with which hee visits his curious charge of Waxe, Tallow, fire-tree, or any other of innocuous, but illuminative substance.

These things well observed, within seaven or eight dayes at the most, succeeding their fourth and last exuviall sicknesse, The Wormes dispose themselves to pay the expence of their Diet. To make preparation for them, there must bee accommodations of food necessary for these Wormes to cime up to vomit their silke, and fasten their Webs by. To assemble these Wormes (the retic assigned to this worke) the most proper matters are Rosemary, cutting of Vines shoots, of Chestnuts, Oakes, Osters, Sallows, Elmes, Ashes, and in generall of all flexible shrubs, not having any disagreeing odour. The feet of these rods evned for the better fixure shall bee joyned at 15 inches distant to the table below, and the tops of them arched together at that above: Which Epitome Amphitheater is Master of as much beauty as those of the Gardens in the greatest volume of their lustre and magnificence, the upper part of the Arch must bee plentifully interwoven with sprigs

sprigs of Lavender, Spike, Thyme, and Shamba, delectable to the smell. By this intermixture the Wormes shall have ample satisfaction to their restless curiosity, where, firmly to fasten their rich matter, having an election of such delectation of Perfumes, & variety of shoots. But these twigs must by no means be green, the moisture extremely offending the Carrell, and not suddenly withering, if the aire be moist.

The Wormes being removed to these Amphitheatrall Trophies, you may easily discover their gratefull inclination to spinne, by their bignesse of body, brightnesse, and clearenesse of belly and neck, neglect of meate, and irregular wandering through the Troop, and a little after to fulfill these promises they ascend their branches to vomit, or rather spinne out their silky substance. Here you must diminish their Ordinary, dayly, for they will in short time have united themselves to those shoots or twigs, quite forsaking the table. Those Wormes which clime not before the others union to the branches, are of a latter hatching, and to prevent all unlesonable intertextures in generall, to the retarding and perishing of the whole worke, must be assembled two other tables arched as these, that they may worke together at one time.

The knowledge (when these Wormes have perfected their Cods or bottoms) may be obtained by an ease that is but the least waile curious, these creatures making both a pleasant humming in feeding and continuing it in fashioning their bottoms, give that noise and their complicated worke over both together. That which falls next is the propagation of the seed to be preserved till the next Harvest.

The Propagation of the Silke Worme seed.

HAPPY creature, which livest only to doe mankind service. And dyest when thou hast accomplished it. I Mische of Nature a Worme that up in his owne monument, breakes through his silky grave, transformed into a Butterflye. I employe ten dayes to erect himselfe a sepulchre, and an equall proportion of time to leave it. I disimprisoning himselfe from his owne interment, by perforation of his bottome, he returns to the view of Mankind in the figure

of a Butterflye, with wings, as if he had already triumphed over his Mortality: which done, he and his co-triumphall Females, coupling together perpetuate their species by dissolution of their bodies; and that which compleats the miracle, may arise from the long abstinence of this living three and twenty dayes imprisoned without any sustenance or fruition of that which he takes a particular delight in, day light.

Removing your branches from the Tables, and your silke-balls or bottomes from the Branches 5 dayes after the worke is perfected, the Balls are then to be made election of, for such seed as you will preserve for the year following. *Bonassil*, & *De Serris* do both agree that there should be proportioned 100 Balls for one ounce of seed, the Balls Male and Female (the description of which hereafter.) But whereas *Bonassil* is of opinion that a hundred double or trebble Bottomes which two or three Wormes have spunne and made up in common, will produce so many Wormes as Bottoms: I demand his pardon if I accede rather to the judgement of *De Serris*: for from every double or triple Bottome there comes forth but one Butterflye, though it hath more within: the Reason is, it being not probable that they should be all ripe together, that which is most mature by perforation of the Balls, exposes the other to the assault of the aire, which giving them cold, they dye imperfect.

To distinguish the sexes.

THE Male of the worrne, when grown great, is knowne from the Female, by a wrinkled head. and a great appearance of eyes; the Female hath the head round without any such appearance. In the Bottomes or Balls the Male is knowne, as having work'd himselfe into a Bottome, long, slender, and by much sharper at one end then the other: the Bottomes of the Female are bigger, fatter, round at one end, halfe pointed at the other.

The Sex in chise Butterflies is thus distinguished: the Male is lesser of body then the Female, stirring the wings more often and more strongly.

Selecting then two hundred bottomes (male & female included in the number) you must passe a thread through the first and outward
Down,

Downe, called the Sleave of the Ball (using a wary hand that you pierce not into the silke, lest the cold getting in you should quite abortive your Wormes) of which you must make severall connections composed of an equall number of both Sexes; these (to prevent Rats and Mice) must be hang'd upon some hook in a chamber of middle temper, but something inclining to coolnesse, yet however not subject to moisture, that the Butterflies may come out with the more facility,

Having pierced through their confinement, though nature her selfe insates in them disposed applications to finde out their opposite Sexes, it will be necessary to couple such as yet are disjoyned: all which, after you shall perceive them in conjuncture, must bee set either upon Say, Piropus, Tamme, Chamlet, the Backside of old Velvet, in generall vpon any stuffe which has no woolly Downe, wherein the graine may be lost, or where it may get betwene the threads, as is linnen) hang'd upon the wall close by their Balls, or in defect of such stuffe, take Walnut-tree leaves one handfull, or more as you shall see occasion, tye them by dozens backside together, hang them at severall nailes or pinnes, and set the coupled Butterflies thereon. Take the Chamlet, or other stuffes, receiving the seed, and rub it gently between your hands, and the seed will come out with great facility.

The principall time of the Butterflies issuing out from the Cocoon, is in the morning about eight of the Clock: the seed collected must be put into a Boxe very cleane pasted with paper, to exclude all aire or dust, kept in a Chest in a drye temperate place where it may be preserved till the Spring following, avoiding to make any continuall fires in such Chambers, lest the warmth untimely hatch the Wormes, which being brought forth at such a season must perish for want of food.

The Spaniard takes commonly the double and triple Balls for seed; not that he conceites every double Ball should produce two Butterflies, or which is a conceit of more fondnesse, Male and Female; but because the multiplicity of creatures spinning their silk in common, make the worke so confused that they cannot well winde it off, which makes them be put in the ranke of the pierced ones for slave, and I must ingenuously acknowledge my selfe to

seeds to his opinion; for these double and triple balls are not unapt for this purpose, since they commonly, as *D. Serris* observes, come rather from a lustiness and suppleness of the Worme, then any naturall debility: Which sure are so much fitter to bee culled out, that the best balls may bee made into silke, which will easily winde, and the seeds of these which is fully as proper for seed, but lesse apt for silke: neither doe I know why they should not bee preferred; since the Spanish seed proceeding from these double and triple Balls carries a particular preheminance above the rest; which if wee shall make use of, the use is the same with others, except that they must bee clipped at the smaller end with the poynt of a paire of scissors, with a regard that you cut not cleane through the bottome, which would by admission of wind destroy the Worme, and this they doe that the Batte flies: if more then one, may finde an easie passage; the best bottomes (if you will preferve them) for Graine, are great, hard, weighty, and of carnation or flesh colour.

The balls preserved for seed being made choice of, the next thing wee are to fall upon is, how to winde off the bottomes designed for silke: Which would bee of much more advantage for purity and plenty of silke, and facility of labour, if they could immediately bee wound off. The silke so fresh y taken unwinding without any losse or violence: But this delayed, the Gumme, by which the Worme fastens her threads becomming dry, doth so harden the bottome, that without difficulty and losse, the winding cannot bee accomplished.

This expeditious winding prevents the enclosed Worme of her full metamorphose into a Butterflye, and the bottome from perforation: But then where shall wee finde so many workemen if the designe were generall, as could in seven or eight dayes winde off so many millions of bottomes? Nor excluding them fore such as can have that conveniency, the next best course to kill the Butterflies in those bottomes which wee cannot winde off, is, by exposing and laying them in the Sunne, the heate of which in its owne workes stifles this Creature: But let this bee two or three dayes successively (not all at one exposure, lest your silke be burned in dread of stifling its spinner) two houres before, and two houres af-
ternoone

termeone each day respectively. Let the bottomes, spread upon sheets, be turned often, that the heate may destroy equally, no one excepted from this sharpe insolation; but this must not bee done with a rude hand, which instead of turning them may bruise the Worme, the slimy matter of whose body, being thus bruised, is very preiudiciall both for staining the silke, and gluing it so together, that no Artist can ever unwind them.

Removing them therefore oftentimes during such sunning with a gentle hand, wrap them thus warmed in sheets, and let them lye in a fresh dry chamber.

But if the Sunne should faile, an Oven of such moderate heate as is usuall after two houres drawing the bread, or heated to such a degree of warmth (laying it over with boards, and the bottomes in sacks upon those boards, there remaining each time an houre and a halfe, repeating it till your experience by opening the most suspected bottome finde the inclosed Worme consumed) will bee of equall operation.

But that which is the best and least practised course is this: Take your bottomes, and fill such a Furnace or Copper as your Brewers use, halfe full of Water: Within three fingers breadth of this boyling water, lay a lid or planke or board within the Copper, bored through as thick with holes as a Tullender, and so fit to the side of the Furnace, that it by no meanes may sinke into the water: Upon this cover lay a thin Carpet of Darnet, or the like, and upon the Carpet the silke bottomes, which must bee often stirred, with care not to use too much violence. The mouth of the Copper, except when you stir the bottomes, must bee constantly covered, that the heate may smother the Wormes; Your Wormes being dead, lay your bottomes in some roome, where there is aire to dry their moysture. This is an assured (though not vulgar) experiment, and by it your silke becomes as easie in the winding, and as pure in colour and substance, as if it had bene spunne the same moment the Worme had given it perfection.

To winde off the Silke from the Cod, or Bottome.

THe winding off the silke from the Cod or bottome, is thus effected: fill a Caldron full of very faire water, and let it upon a Furnace, heate it to such a degree that the water becomes bubbled,

as though there were small Pearles in the middle, being ready to
 seeth; then cast in your Cods or bottomes, still stirring them up
 and downe with broome or other small bushes, if you shall see
 that the heate is not capable to make your bottomes winde, aug-
 ment your fire, otherwise abate it.

The bottomes winding the threads will take hold of the broome
 or brushes; draw those threads so affixed the length of halfe a
 yard and more out with your fingers, till all the grossefnesse of the
 bottome bee wound off, which cutting off and laying aside, take
 all the threads of your bottomes united into one and according
 to the bignesse of thread you intend to make (as whether sowing
 or stitching) chose the number, not letting the other threads fall
 into the water againe, which must bee reserved to succede) which
 you must runne through an Wyer Ring, appoynted for to ranke
 the threads which (as you may see in the draught or Picture) must
 be fastened upon the fore part of a piece of wood set directly upon
 a forme before the round or circle, which wee call a Bobin, in the
 top of which piece in a little space that there is, are fastned two
 Bobins, distant from one another two fingers; from this wyer ring
 the thread must bee drawne and crossed upon the bobins, whose
 onely use there is to twist the silke through a ring which is fastned
 in the midst of a staffe; above the Bobins you must continue the
 draught of your thread; this staffe which moves with the wheele
 is called a Lincet set a crosse beneath the wheelles. from that Ring
 you must fasten your thread upon the wheele it selfe, which must
 bee still turned till the skeyne of silke bee wound up, the Repre-
 sentation see in the next figure.

Observe, when any thread discontinues, his bottome being
 wound off, to repaire your number from another bottome, this you
 shall perceive when your full number of bottomes stir not toge-
 ther.

Be sure that you artificially cut the knots which will bee in
 your threads, that your silke may bee more pure and uniforme.

Those which cast Gumme Arabick in the water under pretence
 to make the silke winde more pure and glossy, are but impostours,
 it being a meer cheate to make the silke weigh the heavier.

Balins, or Caldrons, wherein you put your bottoms to winde, if
 of

of Lead make the silke more pure then those of Copper, this Metall being subject to a rubiginous quality, from which Lead is wholly exempt. Let the wheeles be large for the better speeding of the worke, that two skines may be wound off together. That the fire of the Furnace may be pure, and without smoke, let it be made of Charcoale.

The difficulty of their winding may be mollified by sope, put in the Basin or Caldron; the old Cods or bottoms hardened by time, will have the naturall Gumme which glues their threads dissolved, and the silke come off much more easie.

Those bottomes of silke preserved for seed, and pierced by the Butterflies, may be made of good use, if washing them in water you throwe them into a Caldron ready to boyle, with sope in it, which must be dissolved before the bottomes are cast in: thus let them boyle a quarter of an houre, or thereabouts, which done, take them out, wash them in cleane water and drye them; being d'ryed you must beat them with a round staffe of a good bignesse upon a stone or some block which is better, which will make them become white, and smooth as wooll. The way to spinne them after is this.

They must with the fingers be pul'd one from one another, and opened as wooll uses to be in such preparations, let it then bee put on a Distaffe and spunne as small as you can, or please.

Treatise of the Vine.

THAT the use of the Vine is really intended by nature for VIRGINIA, those infinite store of Grapes which crowne the forehead of that happy Country are so many speaking testimonies: But what fate hath hitherto diverted our English there inhabiting from the publick undertaking a Commodity of so inestimable benefit, I doe not say for a publick Staple (though it would bee as rich as any other one species of Traffick whatsoever) but even from private Vineyards, where they might sit under their owne Vine, drinke of their owne Grapes, satisfy even the most irregular desire of their voluptuous appetites, and all this *de se*, without entering
into

into the Merchants bookes for Wines, peradventure adulterate, without paying the sweat of their browes for the exudation of the Grape. I dare not determinately judge, lest I might bee forced to ascribe it either to a strange nonchaleney or sluggishnesse to their owne profit, or which is worse an inveterate contempt of all other wayes of improvement (of what ever returne) in comparison of Fume of Tobacco.

But that they may not bee ignorant of the profit of the Vine, they will bee pleased to know that the Vine requires (once planted) little more labour then the Hoppe. To attend upon foure Acres of Hops is the ordinary underraking of one man in ENGLAND, who besides this, neglects not many other labours. If one man in VIRGINIA bee not sufficient to doe as much as another in ENGLAND, I shall either imagine him to bee lame or idle; nor let them object to me the heat of the Countrey; if the mid-dayes be hotter, the mornings are much colder, and the Laborer in VIRGINIA hath this advantage of being full of bread to satiety, whereas oftentimes the Hireling in ENGLAND having a family to feed, and sometimes no employment, comes to worke with a famish'd body. and courage, lives meerly *de die in diem*, with as little hopes of ever changing the copy of his fortune, as renewing the lease of his Cottage with his Landlord: those are but leane encouragements. In VIRGINIA the meanest servant (if he have any spirit) is still in expectation of improving his condition, and without any presumption may cherish his hopes, which promise him (his time expired) a present happinesse and future possibility of a Fortune equall, if not outgoings his Master, the encouragement being greater, the care lesse, and his provisionall subsistence by much better: why the Laborer in VIRGINIA should not be (I do not say superiour) but equall in strength of body and resolution of minde, to the miserable day-Hireling in ENGLAND, needs an OEDIPUS to unriddle.

By this I hope it granted, that the VIRGINIAN may without any extraordinary efforts of sweat and spirit, labour equally with those of ENGLAND, and upon this account I shall assigne a Vignard of four Acres to his tillage, an easie task; let us compute the profit with the labour, and see what may be the proceed of this proportion well husbanded. That

That an acre of Vines in VIRGINIA (when once growne to perfection) will yield an equall increase to a common Acre of Vines in FRANCE, (there being as great a difference between the soyles as the Acres, and much greater) will I believe be denyed by none, who pretend to modesty or reason: yet the Acre of Vines in FRANCE, one with another, very few excepted, will yield yearly ten or twelve Muids of Wine, a measure containing seventy two gallons (a very famous Frenchman LIEBAULT, is my Author:) what the common Acre, or Arpent, is in FRANCE, the same man informes us: an Arpent (the common Arpent or Acre of FRANCE) is 100 Pole in the square, the Pole being longer then ours by eighteen inches; so that one French Acre yields three Tun of Wine and upwards; Our Acre being near upon 50 Pole more, we doubt not of profit equall.

The excellent VIRGINIA will pardon me, if for dilucidation of an argument, I make her pure and unexhausted browes descend to weare a Gyrlond of fertility equall to that laborious and over-teeming Mother, the French Kingdome, nay to her common Vineyards; yet let us compute the profit arising from the foure acres, being but one mans labour, we shall finde the product even by that estimate, to be twelve Tunne of Wine, as the recompence of his particular soyle: let us imagine this but at ten pounds the Tunne, and the profits of this single person amounts to 120 pounds *per annum*.

Here they will object the deareness or difficulty of Caske; but this objection must be made by those who know not VIRGINIA, where there is such an excellent convenience, and abundance of peculiarly proper Timber, that the Winter will afford the other Labourers together with our Vignerons leisure, to cleave Pipe-staves sufficient for private use of Caske, and to sell to the publique; one man (during that little season) being easily able to make foure thousand.

But our acre being a third part bigger, the soyle better, why we may not promise to our selves this profit, is an incredulity in ENGLAND, worth a brand of misunderstanding, in SPAINE would deserve the Inquisition.

What

What soyle is most proper for the Vine.

HEE which will goe to plant the Vine without the twinne consideration of the qualty of the soyle, and the disposition of the aire, hath much affinity with him who goes to Sea without Lead or Compasse: the one seldome attaines his Port, nor the other his Harvest.

The quality of the ground whereon the Vine thrives best, is a fine small Mould, of a substance rather inclining to a gentle lightnesse, then a churlish stubbornesse: they which would not have it to be very far, are ignorant that while the Vine is yong, the soyle where you plant may be employed to other tillage, and by such expence of its native richnesse, reduced to that which they commend so highly, mediocrity: But if the fatnesse of the ground transmit a rich and never-failing sap into the nascent Vine, making it grow speedy and strongly, if the Vine participate of this fatnesse, which it may be they call grossenesse, as desiring to have it more subtile, there is small question to be made, but that this Wine so imbodied and fortified by nature, must have extraordinary spirits to preserve it, and that age will have refined all that grossenesse into more pure and noble spirits; that if transported, the Sea will contribute to its melioration: whereas this Wine which they call subtile and delicate spirits, if either preserved long or transported far, will with so much applauded subtilty and delicacy lose all his spirits by age and evaporation.

Scruple therefore at the richnesse of your ground no more then at the ranknesse of your purse; tis in your power to correct either, if there were necessity: let it have the qualities of gentle, easie, fine, and light, to be stirred, seated (if possible) on the decline of a Hill, not neare to any Marish ground, nor having any springs gliding through it; these Marish grounds you must avoyd as you would doe Levell in a Valley. And the reason is, that the Vine growing in these parts has a crude and undigested bloud, quickly soures, and has neither strength to commend or preserve it, and the Frosts in the winter time sinking to his roots, by the moyst passage of his secretion, kills it; the Grapes plump and breake, and when as

an additional judgement to your injudicious election, a Rainy yeare comes to afflict, the Kernells breake out, the true juice of the Grape accompanying it, and though it fall out that the Grape swell againe, yet let not your expectation swell upon it, for instead of good Wine proceeding from thence, you will receive nothing but Viny water.

The gentle, easie, fine, and light ground being the best, does not so wholly arrogate all excellency, as to deny an accession, a neighbourhood of goodnesse to other soyles. The gravelly ground yieldeth Wine of a great delicacy, but a small quantity; besides the infant Plants are in danger of being wash'd away in any extraordinary surfeit of raines, such grounds being not able to give them a deep rooting. The like may be said of sandy ground which notwithstanding in some places especially where it is of a nitrous substance, will not yield the Palme to any ground of whatever richnesse; other grounds may have an enforced richnesse, but because usually all such ensatning compost consists of Dung and Urine, which spoyle the purity of the Vine: If my advice were of any weight, they should never be used for Vintage, till necessity commanded my obedience.

For the disposition of the aire, is particularly whether inclining to a Meridian, or Oblique to the South, South-East, or South-West; if we contemplate the nature of the Vine, that it by instinct, prefers places rather hot then cold; drye then moist; that it fitteth stormes and tempests, it affecteth a gentle breathing wind, or a serene calme; we may presently collect that it is neither to be placed open to the North, North-East, nor (in VIRGINIA especially) to that Nursery of storms, the North-West quarters, nor up in the tops of Hills, where it lyes equally available to all: the deare place then for the Vines embraces, is a Descent, towards, not in a Valley (except never subject to inundations) that being sheltered from the more blustering Dominions in the aire, it lye open to the South, South-West, South-East, or any part of the East and West, within the South quarter, for such a gratefull mansion, and acceptable soyle assigned him, doubt not, but he will requite you a rent which shall justify your most unbounded wishes.

But lest the eye in the option of your Vineyard, may impose u-

pon you, considering that every ground hath some arcane quality which the sight is not able to discover: to make a most certaine experiment, let me propose this way of Examen. Make a pit in the ground (where your intentions are to plant) two foot deep, take a clod of the earth so cast up, powder it, and infuse it in a glasse full of cleare Raine-water, do your best to incorporate it with the water by frequent agitation and mixture: let it repose till the subsided earth have made his perfect residence and settlement in the bottome, and the water recovered her native clearenesse; taste the water, and arrest your judgement upon this, that such a tast as the water delivers to your pallate, will that earth transmit to your wine: if of an inoffensive or acceptable relish, you may confidently promise your selfe a Wine pure, and consequently (if the soyle be rich) very noble, nor is a salt taste an ill argument: but if it be a bitter aluminous, or sulphury gust, this place is not fit for your planting, you lose your Wine and your labour.

But VIRGINIA has a more certaine assurance; God and nature have pointed them a soyle out with their owne finger, let them therefore fix their eyes upon those places where either the Vine or Mulberry grow conjoyn'd, or sepearate, and let them assure themselves of the excellency of the soyle, a difference in this being an affront to Nature: yet this caution is to be used that though Valleys are Marshy places, may sometime have them by nature, yet their florescence would be much more excellent and healthfull if removed to such a ground as formerly we have made choise of.

To make election of Plants.

Curiosity about the choise of your Vine Plants will commend your Husbandry; let the Vine therefore from whence you take your Plant be of as little Pith as may be, such unpithy Vines being both fruitfull and fortified by nature, bearing a remarkable abundance of substantiall Grapes, and strongly resists the violence of the weather, and of this fertility and firmnesse will your Plant also participate. Let not the Vine you meane to plant from, be above the middle of his strength, or age, and observe about September those which are most laden with Grapes, fullest of eyes in their branches,

branches, and have been least wounded by the unseasonableness of Weather. Take not a Vine growing on a South side, to transplant him to a Northerne: and let this downe for a principle in Nature, that all plants removed to a better situation and soyle, answer your largest hopes, by their fruitfulness: but transplanted to a worse, assure your selfe that without an extraordinary cultivation, there cannot be the least probability of its thriving.

Let your Plant (if you may with conveniency) immediately be planted after its seperation from its originall; for while it yet retains any vitall vigour, it will the sooner apply it selfe to the desire of life and nourishment. If your necessity will not admit of this festination, wrap it tenderly in its owne earth; and when your leisure will permit you to plant it, let it soake some foure or five dayes in water, and (if possible) running water: this immersing is a very strong preparative to its sudden taking root.

If you apprehend a necessity of keeping him long or transporting him, (imagine it the Cyprian or Calabrian Grape thus to be transportable into Virginia,) put him into a close Barrell fill'd up with earth; and that no aire may mortifie him, let both ends of the Plant be put into Onions or Garlick, or (which is better) made up with wax, and now and then watred, but not more then to keep the earth from resolving into a dry dust; for too much moisture might (instead of preserving him) make him fructifie, and your Plant would become all root.

Wee have already spoken how we must chuse, but not what we must make choice of: Let your Plants therefore be of those which grow between the highest and lowest, (the lowest having too much of earthy juice, and the highest too little) let them be round, smooth, and firme, having many eyes, and about one foot and a halfe of old wood cut off with the new.

The manner, and way to Plant Vines.

Human curiosity plungeth us in so many unnecessary toils, that it would almost take a person off from necessary labour: Look into *Columella*, the *Countrey Farme*, the *Dutch Husbandry*, and all those supercilious Writers, and you shall see them stand upon such

impertinent Pantallos; one while the dependance upon starres be nights a man, another while the ground which should produce this or that, must be cast after this forme, or else it will be barren in spite of the bounty of the Divine Providence.

Not enumerating therefore all their wayes of Planting, I dare lay my life that if the Vine were but set on foot in VIRGINIA, the ground prepared for it as they doe their Tobacco there, by a right line, holes made instead of their Hillocks, but larger, deeper, and at greater distance, that there might something grow betwixt them which might be inoffensive to it by nature, and cleare it from being choak'd with weedes, or something drawing a contrary juice, (peradventure Onions and Garlick) or something requiring small nourishment, (as Lupins) which turn'd into the earth againe (distance of five foot being left for a Plough, with caution not to come too neare the Roots, which must be bared with a stowe, the Plough running first the length, and then the traverse of those rowes, which therefore must bee lineally straight) would both fatten the earth, and cultivate the Vine all at one moment. Yet submitting my selfe to judgements of greater experience than my modesty or nature can ever hope for, I shall deliver the severall way of planting the Vine, with as much brevity as the matter, and my first resolution rather to contract then enlarge, will permit mee.

The first preparing of the earth to receive the Vine must bee done in Spring or Summer, where the ground you digge or cast must bee cleansed from all manner of superfluities whatsoever, namely, Roots, Weedes, Stones, &c. this digging must bee severall times repeated, that the earth by alternate changing its place of top and bottome may bee thoroughly tempred, the dry refreshed, and the moyst qualified: Thus cleansed, cast it into many furrowes (the sides whereof the French call Chevaliers or Guides, because it should guide you in the planting) the depth of eightene inches or more; let the mould cast up above, bee so disposed, that it may answer to the depth below.

Note that these furrowes in a sandy, flinty, or wet ground must not bee so hollow as in that which is rough and crabb'd: In the bottome of the first you may put stones above the hignesse of an ordinary

ordinary brick (but round) not bigger, which in the heate of Summer refreshes, in violence of Raine opens a passage to the water, that it dwell not at the Root to rot it.

The best season for planting of Vines is in October, the Moone increasing, the Farrowes must bee made in August, that the exposed earth may have time of digestive preparation.

If your plant have Roots, you must when you plant it cut them off all, except it bee newly gathered, if it bee a slip or cut, which though it bee not so swift of growth the first yeare, yet is of much longer continuance, you must soake it in water, if it bee possible in running water five or six dayes.

Hee which plants the Vine, the ground thus prepared, and having a line with him, that hee may observe a just evennesse and streightnesse, both in the Row, and to the opposite Plant, that so every foure may make a regular quadrangle, must bow his plant, the bigger end forward one foot into the earth of the Ditch, letting first some of the Mould from the sides fall into it; let him tread upon the Mould the better to fixe the plant, and with his hand (the foot still pressing upon that part of the plant which is inearthed) gently raise or bow the top of the plant that it may grow erect: this done, let him cast some more Mould on it, to the thicknesse of six inches, and cut the top of the Plant, so as not to leave above three knots or joynts above the earth: Let him proceede in planting of the rest, observing the prescribed order: some set two plants together in this order, that if one should faile, the other might recompence the default.

If you will have your Vine to grow without stakes or props, cut it so, that you let it not increase above two or three joynts in the yeare, which will make it to stand firme against all stormes, if but naturally violent.

It will bee extreame ill husbandry to plant Vines of different kindes or qualities together, such diversity there is in their season of ripenesse; some preventing your expectation by the suddainenesse of their maturity, others deceiving it by their late ripenesse. Wee have spoken of the planting, let us now handle the culture and dresse of it, that his fertility may in some measure require the labour of his implanting.

The manner of dressing the Vine.

MId May will bee a season which will best informe you, whether your Plants have taken so good root, that it expresses a verdure and germination in his Branches; when therefore the shoot is able to indure dressing, let it bee cut within two or three knots of the old Wood, and if any other slips spring from the Root, cut them away (with care however that it wound not the Root, or the maine stock, which are wonderfully offended by the too neare approach of any toole that is edged.) that the whole strength of the Vine may unite into one common stock or pillar, to support and convey the sap into the permitted branches, of which you may not let any flourish the first yeare of its growth. It is observed, that to cut the Vine in the decrease of the Moone, makes the fleshy part of the Grape of a more substantiall growthe and feeding, and is a peculiar remedy for those Vines which are given to bee over-ranke with wood: Let it bee the care of the Vigneron to remoove all obstructions of Weedes which uninvited participate of the Vines nourishment: the surest way to kull which, is, to turne them in towards the earth, which is not onely a destruction to the chiefe of its moysture, but a restitution of the robbery; for the Weedes so inverted enrich the ground to the great encouragement of the Vine, and the no lesse profit of the Vine dressers. Let your knife with which you cut your Vine bee very sharpe, and let your Vine bee cut sloping at one cut, if possible, and not far from the old Wood, that the growth of the Vine may the more speedily cover the wound.

The Vines must bee dressed or husbanded three times the yeare, the first culture of it must bee in March, at which time you are to digge about the Root three quarters of a foot deep, or thereabouts: The next season must be in April, wherein you must digge about the Roote, within a third of the former depth, then you must also prune it by cutting all the branches, and leaving some three knots or joynts of the new wood in your Vine of the first yeares growth, and cutting off all dead or superfluous branches of the old, whose permitted branches must also bee pruned, lest they should

should spend that alimēt decreed for the Grape in elongation of the branches, all succors also must bee plucked away. In August the like course is to bee used in the Wine of the precedent Autumne leaving two or three joynts or knobs of new wood: againe the old ones may bee onely digged, if at that time, and at all other times you perceive any dead or wounded branches you must cut them off something further then the mortification or hurt extends; and in all prunings let no Vine bee cut in the knob or joynt, but in the space betwixt; there following usually nothing but absolute and irremediable decaying, where they are cut in the articular knitting. If in April's dressing, the Vine have no branched but onely budded, which is most usuall (but more especially in March) you must nip the bud off with your fingers, to the end that the juice which would ascend to hasten the germination, may bee stopped to strengthen and engrosse the store.

The third yeare the Vine will beare you Grapes in these Countries, but I am confident that in VIRGINIA it would beare at the second; and this my confidence is grounded upon the hasty perfection all things receive in VIRGINIA, by much preceding all our neighbour Countries. The Peachtree arrives not to that virility of growth in eight yeares, in these regions, which it obtains at foure there. The like is verified in Apples and Cherries: and if it be questioned how such men which peradventure being in a necessary, are not able to attend two yeares for a returne, shall in the meane while subsist: it is easily answered, that the intervalls betwixt the dressings of the Vines will afford space enough for a reasonable Crop of Tobacco; and there is much more labour in looking to 5000. Plants of Tobacco then the like number of Vines, especially if the interspaces be ploughed, and sowed with Turnips or Lupines, which both adde to the fatnesse and unwilding of the ground, and choake up all weeds and grasse which might afflict it. Contrariwise, Tobacco will admit nothing in the Vacant spaces, and must be perpetually weeded. Further, though other Vine-Masters prescribe the digging about the roots of their Plant in August, which is the busie season of inning the Tobacco, yet I am driven by divers reasons to with such culture omitted at that time of the yeare, since it layes the root by so much the nearer

to a violently torrid Sun, which is so far from cherishing of it, that it burnes it; by which means his Crop of Tobacco need not at all to be neglected: but these Vines steale into such perfection by that time they are arrived at foure yeares growth, that twenty thousand Plants of Tobacco, though sold at 6 pence *per* pound, (a great rate in VIRGINIA) will not returne you a like profit, which though it may be something springly believed, yet may be made apparent. For admitting our Vines by that time of 4 foot high, by their so often cutting of the shoots, nourished unto a stock strong enough to support it self; of Branches, by the like tillage, equall in vigour, yield but a gallon of Wine *per* piece, yet here is 20 Tun of Wine yearly, for 30 yeares together, (so long will the Vine thus husbanded, last fruitfull, and vigorous, if Planted with the slip rather then the Root) without any interruption but that which sets bounds and limit to all things, the divine providence in his dispensation of seasons.

Of the Diseases of Vines, and their Remedy.

BEfore we can justifie our expectations of a good Harvest, we must providently foresee and prevent (as much as in us lies) such casualties as may make our hope abortive; let us therefore cast our eye upon such Diseases which may make the Vine unfruitfull, or after the fruit produced, destroy its desired fertility.

To prevent the Frost from benumbing, or absolutely destroying your Vines, let there be layd up in divers places heaps of drye dung, with an intermixture of chaffe and straw, and when you conjecture the approach of the Frost, set this combustible stuffe on fire, and the smoke arising from thence will so temper and qualifie the aire that your Vine for that season will be secured from Damage: yet if (before you have applyed this preventive remedy) the fruit of your Vine be destroyed, cut it off very short, and the strength continuing in the remainder will so fortifie it, that the next yeare it will recompence you double in the quantity of your fruit; for what it hath been rob'd of by the present.

To provide against the blasting of your Vine: When you perceive it upon the point of budding, cut it as late as may be; for this

his late cutting it will make your Vine something later, and by consequence, blossom or flower at such time as the Sunne is ascended to his greatest degree of heat and fervor.

To breake off such Mists and Fogs as are already gathered in the aire, and give probable menaces to fall upon your Vines, you must apply your selfe to this remedy: let a smooke round about your Vineyard be made with Goats dung, kindled and set on fire. Such Foggas as have outstripped your care and already fallen upon, and endammaged your Vines, must have the malignity of their vapors taken off, or at least asswaged by irrigation of Vines, with the water in which the leaves or roots of wilde Cucumbers, or Coloquintida have been layd some time to infuse: this must be applied immediatly after the mists. Some are of an opinion that Bay-trees (which by the way are dangerously sociable to the Vine) planted round, but not too near the Vineyard, will priviledge the Vine from this distaster, by attracting all the ill disposed mallice of those Fogs unto it selfe. This till experimented will hardly be worthy belife.

It is an opinion no way contradicted, that fertility is restored to a Vine become barren, if humane Urine kept a long while stale, to make it the more salt and ranke, be dropt by degrees upon the Vine stock, which must immediatly after be laid about with dung and earth mixt together: the season for the application of this Cure must be in Autumne. Another way I should conceive to be altogether as effectuell, namely, to leave it nothing but the stock, bare the roots, and lay there either Acornes, Cheshnuts, or rotted straw; and if the bignesse of the root will permit it, to cleave it a little way, and to thrust into the fissure a piece of Vine wood, cut small for the purpose; it being certaine that trees themselves sometimes groane under the sicknesse of being hide-bound: Vines are perceived to want moisture, when their leaves turne of a deep red colour: this Disease is cured by watring them with Sea-water, or stale Urine.

The Bleeding of the Vine.

THE Vine sometimes is troubled with an extraordinary Efflux, or emanation of its Juice; some call it the weeping, others the bleeding of the Vine, and this Disease is commonly so violent.

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that if not stopped it leaves the Vine without blood and life. The remedy is to breake the barke of the Vine upon the body thereof, and to anoynt the wound with oyle boyled to the halfe or else with the Lees of Wine not salted; this done, let it bee watered with Vinegar, which by how much the stronger it may bee, is so much more effectuell.

The scattering Vine.

THE Vine sometimes is oppressed with an unretentive scattering disease, as unable to maintaine the fruit shee hath produced, which shee therefore discharges, and lets fall from her; the symptoms by which you are to judge of this disease, are an unnaturall palenesse and drynesse of the leaves, the branch it selfe languid, broad, and of a more pithy softnesse then usuall. The cure to this, is to rub Ashes beaten and mixed with strong Vinegar about the foot of the Vine, and to water all that is round about the stock: *Quere*, whether fissures in the Barke made with a sharpe knife some fixe inches long may not bee an additionall Recite to the former prescription. The tree peradventure having contracted this malady by too close imprisonment in the barke, being in a manner hide bound; how ever the foregoing Medicine cannot in this case but sort to better effect, if the tree and barke joyntly be rubbed over then the barke onely, unless this Medicine could give a relaxation to the barke, which I have no faith in.

The Vine too full of branches, or luxuriant.

THE Vine expending it selfe too wastfully in overmany branches, must bee cut very short. If this overcome not that luxury, the usuall remedy is, let it bee bared at the Roots, and River gravell layd round about the stock, together with a few Ashes or else some stones. The reason I apprehend not, except it bee to check its fertility, which I conceive may more prosperously bee effected, if onely the branches being cut, and the stock low, you suffer that exuberancy to waste it selfe in adding more corpulency to the stock, which will of it selfe bee a sufficient spender to restrain.

straine and confine the former liberality of juice?

The withering Vine.

IF the Grapes languish and dry away as they hang upon the Vine, before you apply a remedy you must cast away all that are already affected with this contagion; then water the rest with Vinegar, in which Ashes of Vine branches have beene infused. The most assured remedy is to water the Root of the Vine, from whence the disease cometh with the stalest Urine; the former Remedy being something irregular, as if it were easily feasible to remove a malady by application to the effects, without considering the efficient.

The rotting of Grapes upon the Vine.

THERE are of Vines whose fruit putrifie upon the Branches before they come to maturity: this disease is remedied by laying old Ashes to their Root, or Gravell, or Barley meale mixed with the seed of Purcellane about the body; *Quare*, whether this disease proceed from a Plethorick ranknesse or emaciate debility: if from rankenesse all application of ashes hurt it: the symptoms of rankenesse are, when a tree lavishes his moysture into too many branches, which may make him neglect to feede the fruit, as unable to maintaine two spenders; and I am confident the naturall remedy for this is to bare him (as much as possible) of wood, that it may divert the nourishment to the Grape; if from debility, which you shall perceive by a flaccid palenes in the leaves, the same remedy which wee prescribed to the withering Vine, *viz.* to water the Root with Urine of a long stalenesse, will bee the most proper.

The biting of the Cow or Ox.

INdeede the best way to prevent this disease, is to have your ground either well paled or quicksetted, or both: But that the biting or breathing of Kine may not endamage the Vine (which hardly recovers after such wound or infection) water the foot stock

of your Vine with such water as the Farmers have used in dressing and mollifying their raw Hides, and you may promise your selfe to bee secured from them, they as mortally hating such scents, as the Vine abhors their bite or breathing.

Against Caterpillars.

THe opinion is, that Caterpillars and other noysome, though little Vermine, will not molest the bud or leafe of the Vine, if the hooke or hedgebill wherewith you prune and cut off the superfluous branches of the Vine be anoynted over with the blood of a Male Goat, or the fat of an Asse, or of a Beare; or with the Oyle wherein Caterpillars or brayed Garlick have beene boyled, or if you anoynt and rub them with the purse or sheath of a Badgers stones, after your hooke has beene ground: These are curious rather then apparently approved Medicines, and for their reason I must demurre to give it. *Quere*, whether the Oyle wherein Caterpillars or brayed Garlick have beene boyled well, rubbed about the stock of the Tree, may not make those Reptilia abhor the ascending, or whether the juce of Rew so applied, have not the like vertue.

The driving Locusts from the Vine is done by fumigation, as either firing of old Oxe dung, *Galbanum*, old shoe soles, Hartshorne, womens haire; but that which they propose last, I conceive to bee the best, namely, to plant Pionie neare them.

To prevent Pismires.

Pismires, who divers times fret in sander the wood of the Vine, even to the very marrow, will not at all approach it, if you anoynt and rub the stock with the dung of Kine, or greafe of Ases.

The Bay-tree, Hasell-tree, and Coleworts beare a particular enmity to the Vine, and expresse it by effects when planted neare; this I cannot believe to bee out of any Magicall Antipathy, but rather that these (as the Plum-tree) are great and strong succors of juice, and happily drawing of the same, by which the Vine is more

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more particularly nourished, of which being cheated, it is no
wonder if she expresse a decendency.

The manner of the Vintage.

AND now wee are come to that which is most acceptable to
Mankinde, the successfull fruit of his labours reaped in his
Vintage, which wee must not of a naturall greedinesse precipitate,
till the Grapes bee of such a kindly ripenesse of age, that to let
them continue on the Vine longer were to lose them; this ripenesse
is visibly understood by a mutation in the Branch and Grape; in
the Branch you shall perceive a manifest mutation by an incline to
rednesse in the Grape; if it bee white it alters towards a yellow,
if red towards a black colour; nor are the taste and touch less dis-
cerners of such full maturity; for if they bee sweete in taste, and
the liquor of a glutinous substance, cleaving to the finger; wee
may conclude that both they, and the time to gather them are of
full ripenesse. There are also other signes, if the kernell expressed
out of the grape betweene your fingers, come out cleane, and al-
together separte from the flesh or pulpe of the Vine, if after such
expression (gently performed) the Grape diminish nothing from
his bignesse, &c. These all, or the most of them concurring, pre-
pare for your Harvest.

Yet in VIRGINIA, where the Harvest is more abundant then
the Labourers, to prevent a glut of worke flowing upon few
hands, and consequently not possible to bee thoroughly equall'd:
It will not bee amisse to use both anticipation by accelerating na-
ture with artificiall meanes in some, and retardation by arresting
the sprede of growth in others, to accelerate Affairs layd to the
foot of Vines, and those Vines planted to something more advan-
tage of an amorous Sunne, will make them antecede the others, at
the least by their advance of foureteens dayes; the other in their
naturall course following that space after, and the others more
particularly retarded (which may bee easily effected by the pruning
of them later then the rest just upon their preparative to bud;
which arresting the sap makes it afterwards (though later) returne
with a greater abundance) staying foureteene dayes later, there
will

Will bee completely fixe weekes time for the gathering in of your Vintage. And by this meanes you have your Vineyard tilled or manured every third yeare all over, which will bee no ingratefull accession to its duration in fertility and strength: Those of the most forward ripenesse this year, being retarded the next, and those of the naturall maturation husbanded in that manner, the next Winter.

The fittest season to gather them must bee in a serene unclouded sky (the Grapes having any Raine or Dew upon them when gathered; losing much of their perfect strength and goodnesse;) for the Wine made of Grapes throughly dryed in their collection, hath a greater priviledge of force and continuance: But before this collection bee attempted, all things fitting to receive your Vintage must bee prepared in cleanness and order, viz. Baskets, Caske, and Fatts strongly hooped, Tubs great and small, Stands, Presses, &c. and all scoured, washed, and furnished with their necessary instruments and conveniencies.

The Grape gatherer must distinguish and seperate the leane, green, sower, withered, or rotten Grapes, from those which are of absolute ripenesse and soundnesse. That the Wine by such an uncomely confusion or mixture may not bee lesse pure, sprightly, and healthfull, then it was intended by nature, such inconsiderate Gatherers are sayd to bee of the Divells sending, to spoyle Gods provisions. Nor should they confusedly mixe good with good, if of different quality, as to mingle that which is strong and rich, with which is small, but delicate. They prescribe that the Grapes so gathered should bee left in the ground at least a day or two, and that uncovered, provided it raine not, by which meanes, say they, they will become much better, since the Sunne, dew, and earth, by this exposure taking from them what ever they have of bad unprofitable moysture, refine and purifie them. A course as far as my span of reason can extend, so far from this promise of refining and purifying, that it absolutely tends to their corruption. Have they wanted the Sunne and Dew when upon the stalke? Could not the same Sunne and Dew which enripened them, refine and purifie them there? As for the earths meliorating them, if melioration bee understood by putrefaction, 'tis easily granted; Apples that
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lye on the ground are so meliorated, that is to say rotted, and shall the Grape a more delicate and tender fruit avoyd it? This is by way of digression, but it is necessary; for without this caution a modest man which reades with an obedient judgement any bookes of these men, taking the Authour for an *authoritas*, subscribes to it, observes the prescription, and gaine a doctrine of future providence, by the losse of his present Vintage.

But after the Grapes have remained a day or two in the house, it will bee time to put them into the Fatt to bee trodden out equally. Those which tread the Grapes should before they go into the Fatt have their feete and legges washed extremely, and themselves covered with a shirt as well as drawers, that their sweat may not mixe with the Wine, and that nothing in the act of eating fall from their mouths into it, they must bee punctuall in abstaining from eating of the Grapes, while they are at this their labour.

Surely this way of treading the Grape is derived from some abstentious man, who devised this stratagem under a pretence of expediting the worke; but indeede to deter men from drinking that which is so uncomely prepared. I know they will alledge that by treading it flowes more naturally, and withall more pure forth, then that which is pressed; but withall give mee leave, say that the very Presse it selfe if it bee not too violently and greedily laboured, makes it glide forth altogether as naturally and purely, and which is more with greater equality; for in the Presse, all the Grapes feele the impulsion at once, and if the Owner bee not too covetous to bring the drosse and grosse parts of the Grape to a second squeezing, and mixing with the first; without dispute the Wine so expressed is altogether as good and strong as that which is trodden, but I am certaine much more cleanly.

The Wine (however) being expressed must be poured, drosse, Huskes, and all, into a Fat to worke or boyle in, which it must doe for the space of foure and twenty houres at the least, if you will have it fine, delicate, and subtile; but if you desire to have it strong and noble, let it worke in the Fat foure or five dayes, with a Covering over it, that so the vapour thereof may not exhale, or his force waste it selfe.

The Fat, or Tub prepared, must have immediately before his reception

ception of the Wine, a little bunch of Vine branches laid before the Tap-hole, which (that it may not heave up with the Wine) must be kept downe with a cleane stone or Brick, or which is better and lesse offensive, a ring of Lead wound about it: this when you draw the Wine will hinder the Huskes or Grapes from coming out with the liquor. Your Fat must not be full by halfe a foot or more, that the Wine may have the more space to boyle or worke in.

Your Wine invessel'd must not be filled up to the Bung, nor the Bung closed, that the Wine may have the greater liberty of dissipation, and rejecting whatever it findes reluctant to its owne nature.

Every day you must fill up what is expurg'd, and something more, till you finde the Wine thoroughly appeas'd, and discharged of whatever might be obstractive to its generosity: nor must this Caske be in the Cellar, but either in the open aire, or in some Barne where it has a liberall respiration; besides the defects in Caske cannot be so easily discovered when the Wine is in the Cellar, as in open places. When it is so thoroughly settled, that it hath given over all appetite or signe of boyling, you may have it committed to your Cellar, which should stand upon the North here, (in VIRGINIA upon the North-west as the coolest and driest Angle) paved with gravell or drye earth, which is lesse subject to moysture or exudations then Brick, or especially stone, absolutely remote and unmolested by any ill odours of Stables, Sinkes, Barthes, Marshy places, &c. neither should it have any thing shut up or kept in it, which have any sent of acrimony or harshnesse, as Cheefe, Garlick, Onions, Oyles, (Trane, Neatsfoot, Linseed, and others, nor the Salade-Oyle) it being observed, that nothing is more open or obnoxious to contagion then Wine, especially when new.

Your Vessells must be so rank'd in order that they touch not one another, by this means to leave a liberty of sight to foresee a misfortune, or prevent it when happened. They must be so close stopped in the Bung with Clay, that not the least irreption of aire may be capable to taint it, to which it is very subject.

To caulk new wine to be quickly purged, put (after this proportion

portion in the rest:) to 15 quarts of new Wine, halfe a pint of strong Vinegar, and within the space of three dayes it will be fined.

To preserve Mustor new Wineall the yeare, take that Vine which voluntary distilleth from the Grapes, before it suffer the presse, and put it into a Vessell pitch'd within and without the same day: let the Vessell be halfe full, and very well stop'd with plaster above; and thus the new Wine will continue a long while in his sweetnesse. But to adde to this experiment and the continuance of the Wine, you must hinder it from working, which you may well doe, if you put the Vessell into some Well or River, there to remaine thirty dayes; for not having boyled it will continue alwayes sweet, and is preserved by the heat of the Pitch. Others prefer the burying of this Vessell in moist gravell: and (which in my opinion is the best) others cover the Vessell first with the drosse of the Wine presse, then heap upon it moyst gravell; by which meanes, something interposing betwixt the extraordinary moysture and cold of the gravell, which might have some influx upon the Wine, your Must preserved in an excellent meane of temper.

To know if there be any water in the Wine.

THE Malice of servants sometimes swallowing downe their Masters Wine, and fearing to be discovered if the quantity be diminished, or the basenesse of the Dealer to impose upon the Merchant, makes both of them adulterate it with water, which not being discernable to the eye, may be made familiar to your knowledge by this experiment: Take a withered Rush, immerge it in the Wine, after a small space draw it out againe: if the Wine have been thus bastarded, you shall perceive the water cleaving to it. Otherwise, take raw and wilde Peares, cutting, and cleansing them in the milke, or in ieu of them, Mulberries, cast them into the Wine: if they float, the Wine is neat and cleare from such sophistication; if they subside there is water in it. Some doe anoint a Reed, a piece of wood, or paper, hay, or some other little bundle of herbs, or Strawes with Oyle, which if they drye, put into the

Wine, and after draw them out; If the Wine have been embased with water, drops thereof will gather unto the Oyle. Another sure tryall is to cast unslaked Lime into the Wine; if there be any adulation, the Lime dissolves, if the Wine be undeveloped, the Lime collects thereby a harder cementation. Others take of the Wine, and inject it into a Frying-pan wherein there is boyling Oyle, and the Wine (if depured) declares it with a loud noise, and frequent Bubbles. To make another tryall, lay an Egge into the Wine, the Egge descending, manifests the abuse, not descending, the Wine is as the Grape bled it.

To sepearate Wine from Water.

BUT as the miserable man in the pic desired his friend not to question how he fell in, but to advise how he should get out: We will not be satisfied that there is water in the Wine, but how it may be sepearated from it; which if we may believe the deliverers of it, who have published it to the World in their names, you must put into the Vessell of Wine melted Allum, then stop the mouth of the Vessell with a sponge drenched in Oyle, which done, turne the mouth of the Vessell so stopped, downewards, and the water onely will come forth, leaving the Wine pure: the reason of this I cannot give, and have onely read (not seen) the experiment.

The way to correct over much waterishnesse in Wine.

IF gluts of raine have made the yeare so unseasonable; that the Grape hath contracted a watry quality to the diminution of his Winy goodnesse: or if it fall out that after the time of gathering them, there fall such store of raine, that the Grapes instead of Dewes are too much wetted, (such is the profit of exposing the gathered clusters into the open aire for 48 houres) the remedy is to tread them quickly, and finding the Wine weak, by tasting it after it hath been put into the Vessell, and begun to boyle there, it must presently be changed, and drawne out into another Vessell, for so the watry parts that are in it will stay behinde in the bot-
tome,

come, yet the Wine standing still charged, will be totally corrected; if you put to every fifteen quarts of Wine, a pint and a halfe of Salt.

To make Wine of an acceptable odour.

IF you will perfume your Wine with a gratefull odour, by which the braine may be strengthened, as well as the heart exalted: take a few Myrtle-berries dry, bray them, and put them into a litle Burrell of Wine; let it so rest, close stopped, ten dayes afterwards use it at pleasure. The like effect will follow, if you take the blossoms of the Grapes (those especially which growe upon the shrubby Vines) when the Vine is in flower, and cast them into the Wine, the brimmes of the Wine-veffell being rub'd over with the leaves of the Pine and Cypress tree, and this will give it a fragrancy delightfully odorate: Or which is of equall facility, you may hang an Orange, or Pomecitron, (being of a convenient greatnesse) and prick it full of Cloaves, and that in such sort as it may not touch the Wine, shut up in all these Applications, the Veffell very close. If this like you not, take the simples of such matter as you would have your Wine to smell of, infuse them in *Aqua vite*, the infusion may be repeated by percolation of the old herbe, and addition of new, till it have gotten a full and absolute perfection of those odours you desire, then poure the *Aqua vite* (the herbe strained from it) into the Veffell of Wine.

To make Cate.

YOU may make the boyled Wine called Cate, if you boyle new Wine that is good, lovely, and very sweet untill the third part thereof bee consumed; when it is growne cold put it into a Veffell and use it. But to make this Cate, that it may continue all the yeare, gather your Grapes whole, and let them lye spread three dayes in the Sunne, on the fourth about noone tread them. The liquour or sweet Wine which shal runne out into the Fatt before the drossy substance come under the presse, must bee boyled one third as before; then to every nineteene quarts of Wine adde

an ounce of Irees or Come flag well brayed, straine this Wine without the Lees, which being done, it will continue sweet, firme, and wholesome.

To cause troubled Wines to settle.

TO cause troubled Wines, and such as are full of Lees to settle, poure into thirty quarts of Wine, halfe a pint of the Lees of Oyle boyled, till the third part bee wasted, and the Wines will immediately retaine to their former settlement. Otherwise, which is better and more easie, cast into the Wine-Vessell the whites of six or seven Egges, and stirre them together very well with a stick.

To know whether the Wine will keepe long.

THE knowledge whether the Wine will continue long or not in a good condition, is thus made apparent. When your Wine is tunned up, you must within some time after change it into another Vessell, leaving the Lees behinde in the first; which you must diligently stop from taking any vent whatsoever; after some time you may looke into the Lees with carefull animadversion, whether they change or contract any ill sent or not, or whether they breed any Gnats, or other such Creatures; if you espye none of these mutations or corrupt generation, repose your selfe with all confidence that your Wine will continue pure to the longest: But these Symptomes discovered, will bee so many admonitions to dispose of that Wine with the soonest, which is already by nature inclined to turne bad and corrupt; others take a pipe of Elder, or such other wood as may bee hollowed through, with which they receive the sent of the Lees, and by them informe themselves how the Wine is conditioned.

A good pallate will divine of Wines by the taste, namely that if the new Wine bee sharpe and quick, they repose confidence in its goodnesse and continuance; but if flat and heavy, then they expect nothing but the contrary to good qualities; againe, if the new Wine (when put into the Vessells) be fat and glewy, the sign is prosperous; but if contrariwise, it be thinne and weak, it is an argument

argument that it will easily be turned,

To keepe Wine at all times.

TO effect this, you may cast Roch-Allum (very finely powdred) into the Vessell which you meane to put your new Wine in, or bay Salt very finely powdred: or pibble stones, and little flints taken out of some Brooke, or which will retaine the spirits of the Wine from evaporating: more certainly Salade Oyle, so much as will cover the superficies of the Wine.

To make that Wine shal not Flowre.

Vine will have no Flower, if you put into it the Flowers of the Vine, gathered, and dried, or the meale of Fetches, changing the Wine into another Vessell, when the meale or Flowers are settled downe to the bottome.

To prepare Physicall Wines.

Neither is this digression impertinent; Physitians are not so frequent in VIRGINIA, as in PADUA, or LONDON, and were there more, yet the vast space of ground, those people take up in their scattred dwellings, makes the addresses to them very difficult: that therefore they may (in absence of the Physitian) have some common remedies for common diseases; I have thought fit to give them this account of Medicinall Wines out of LIBAULTY, all of them of excellent Virtues, and easie preparations; the first shall be

To make Wines of Wormewood.

TO which effect, take of Sea-Wormewood, or in default of that, common Wormewood, especially that which hath the small stalke, and short leaves, eight Drammes; stamp them, and binde them in a cloath which is not woven too thick, cast it into the Vessel, pouring new Wine upon it, making this accompt, that to every

every three pints of Wine there must bee eight drams of Wormewood; continue this proportion in the filling of your Vessell, which you must leave with the vent open, that the Wine fall not a new to boyling. The use of this Wine is good for the paine of the stomack and liver, and to kill Wormes.

To make Wine of Horehound.

This Wine being very soveraigne for the Cough, must bee made in the time of Vintage, to which purpose you must gather of the Crops and tender stalkes of Horehound, of that especially which growes in leane untilled places; afterwards cause them to bee dryed in the Sunne, make them up into bundles, tying them with a Rush; sinke them in the vessell to 65 quarts of new Wine; you must put eight pound of Horehound to boyle therewith, after the Wine is settled the Horehound must bee taken out, and the Wine stopt very diligently.

The Wine of Anise and Dill very good against the difficulty of the Urine: The Wine of Peares against the flux of the belly; the Wine of Bayes against the ach and wringings of the belly; the Wine of *Asarum*, *Bacchar* against the Jaundise, Dropies, and Tertian Agues; the Wine of Sage against paines and weakenesse of the sinewes, are all made as the Wine of Wormewood.

To make Wine of Betony.

Take Betony; the Leaves and Seedes about one pound, put it into twenty quarts of Wine, and at the expiration of the seven moneth, change the Wine into new Vessells. This most excellent Wine awageth the paine of the Reines, breaketh the stone, and healeth the Jaundise.

To make the Wine of Hyssop.

Take the leaves of Hyssop well stamped, tye them fast in a very fine cloth; and cast about one pound of them into twenty quarts of new Wine; this Wine is peculiarly excellent against the diseases

diseases of the lungs, an old Cough, and shortness of breath. **Wine of Pomegranates**, made of Pomegranates that are scarce ripe, being thoroughly bruized, and put into a vessell of thick red Wine, serveth of singular use against the fluxe of the belly, to which end also serve the Wines made of Sorvice, Mulberries, and Quinces.

The Ancients had a very high opinion of Treacle Wine, from consideration of its extraordinary vertue in a swaging and healing the bitings of Serpents, and other venomous Beasts. Nor had the Vine solely this vertue in its Grapes, but in the leaves also stamped and applied unto the griev'd part. This Vine is thus prepared: cleave three or foure fingers breadth of the Plant you intend to use, take out the pith, and replenish the vacant part with Treacle, afterwards for the cloven part covered and wrapped in paper. Thus Wines may bee made soporiferous, if you prepare them in the same manner with Opium, as before with Treacle: laxative by preparing it with some soluble purge. By this means you may have Wine to tast like the Greek Calabrian Frontignac, or any other noble for its excellency: if the Lees purified and preserved bee inserted into the pith of the branch, Aromatick, if to these Lees you adde compounds of Cinnamon, Cassia, Cloves, or what ever shall bee most agreeable to the nose and palate.

Treacle Wine inclining to corrupt, and first of Wine.

beginning to sour.

If you perceive Wine beginning to waxe soure, put into the bottom of your Vessell a pot of water well stoppt, close the Vessell, yet so as it have a vent hole to receive and transmit a little ayre: the third day draw out the pot, and you shall see a noble experiment of attraction, for the water will be sucking, and the Wine sound & neat.

At what time, and by what accidents Wine is most apt to corrupt, with its remedy.

THE season when Wines are subject to turne or bee troubled, is about the Summer solstice, viz. the 21. of June, at the same

time that the Vine emits her blossome; nor then alone, but sometimes about the Dog-dayes, by reason of the variety of heates: generally the Wine is in some sort of commotion, when a constant South wind disturbs the aire, whether it bee in Winter or Summer, in great and continued raines also, and winds in Earthquakes or mighty Thunders. To keepe them from turning is by the infection of pan salt, when they boyle or worke, or else of the seed of smallage, Barley-bran, the leaves of Bay-trees, or of Fennell seed-brayed with the Ashes of the Vine brayed. The like effect have Almonds cast into the wine, or the Ashes of the Oake: the Juice of the white Fetch both defends the wine from turning, and keepeth it in his soundnesse. Allum broken in pieces the same, the worst application is of Brimstone, Lime, Plaster, &c. To recover the wine when turned, must bee effected either by changing the Vessell, by beaten pepper, or take whites of Egges, beate them very well, and take the froch from thence arising of them, pour them into the Vessell, which you must immediately seale after its infusion: Or else take twelve Kernells of old Walnuts (the Virginian Walnut I conceive exceeding proper) roast them under the Ashes, and while they are yet hot, draw a sheard through them, hang them in the wine, where they must bee till the wine (which will not fail) recover its former colour.

If the wine become troubled, either the Kernells of Pine Apples, or Peaches, or the whites of Egges, and a little salt will not faile to cleare and refine it: Others take halfe a pound of Allum, as much Sugar, make a very small powder thereof, and cast it into the Vessell.

To helpe wine that begins to wast and die.

If you by manifest Symptomes apprehend your wine suddenly inclining to degenerate and corrupt, this course is prescribed: If it bee Clarret, take the Yelke of an Egge, if white, the white adde to it three ounces of cleare bright water taken out of a running River, make them into a small powder, together with two ounces of Salt, mingle all together, and let the wine stand in another Vessell cleare and cleane, not turned with any small vessell hand)

cast

cast in this Compound; mingle it with the wine five or six times the day, untill three or foure dayes bee past: This remedy is not prescribed when wine is absolutely spoiled; for then it would bee applyed to no purpose; but that the carefull Master should by his observation of it to such a disposition; prevent it by this experiment.

To restore Wine growne musty, unto his former purity.

CAST into the Vessell Cowes milke salted: Some (but to the infinite unhealthfullnesse of him that drinckes it) attempt this restauration with Allum, Lime, and Brimstone; a more undangerous way is to infuse in it Juniper-berries, and Irises Roots: Yet if the wine should continue this ill senting quality, by having taken winde: Let it bee roiled too and againe to awaken the spirits thereof; that they may the better disperse the strength of its infusion; afterwards set it againe upon his candel, replenish the Vessel and shut it close to prevent winde for the future.

To preserve Wines from fowring, may bee performed by your disposing of your Vessell in a place that is very coole and dry. (The Vessels being very well filled and well stopp'd) to prevent as well the emission of the spiries, by which the Wine containes vigorous, as the admission of aye. But in regard all men are not the masters of such opportunitie conveniencies, being forced sometimes to make uses of places obnoxious to heate; and drawing one Vessell along time, cannot hinder the secret invasions of aye; yet if you perceive in time that your Wine begins to harbour an acid or soure quality, you shall preserve it from falling into a full degree of sourenesse; if you take a good piece of Lard, wrap it well into linnen cloth, tye it to a small cord, and let it downe by the Runghole into the middle of the Wine, still letting it lower as the Wine decoreth. Some advise, and not without a great appearance of reason, to put into the Vessell, Oyle Olive, or Salade, in such quantity, that it may onely cover the superficies of the Wine: Which Oyle when the Wine is drawne off from the Lees, may bee separated from them, and preserved.

To take away the waterishnesse and crude moisture of the wine,

Put into the Vessel the leaves of the Pomegranate-tree, though in my opinion such Wine being easily knowne in the Ratt, which first trodden should be corrected by boyling, as afore-
 The remedy against venomous Beasts falling into the Wine, as Adders, Rats, &c. is, so soone as the dead body is found, to burne it and cast the Ashes into the same Vessel, stirring it about with a wooden stick: Others give advice to put hot bread into the Vessel which will smother all the venomous qualities to it selfe, and cleare the Wine.

Of the Olive. The Olive tree is a

THE Vine and Olive being such delightfull associates as to expresse a mutuall emulation for the Glory of fertility when planted together. This Treatise shall not divide them, they are both exhilaratives, the Vine rejoices the heart, the Olive glads the countenance, and that VIRGINIA may expresse the delight she affords to mankind by being reinforced with this second Sister of laughter, the Olive; this discourse particularly designed to her improvement, shewes us planting and culture when planted.

The Olive tree, though it delight in a rich fat ground, yet if he have a warme aire, and a South, or South-East wind to refresh him, will in all places testifie a bounteous gratitude for its situation in an almost unlaboured soil for fertility. Yet to prepare a place for this rich plant to prosper on, his prosperity being no small part of your towin, you must digge the pits where you intend to plant them, a yeare before such implanting, in this pit burne some straw, or which is better castings of Vine or Brambles (but no part of Oake, there being such a particular enmity betwixt this tree and the Oake, that the Olive not onely refuses its neighbourhood, but dies if planted in the place where the Oake has beene rooted up) or you may leave it to the Sunne and Raine, which will without such a dustion exhale and purifie all infectious vapours: The place being provided to plant upon, we must next select our Plant.

Select your Plants from the Shoots or Branches of those Olive trees which are young, faire, and fertile: Let them bee in thicknesse the circumference of an ordinary wrist, in length eightene inches; plant it the bigger end downewards into the earth, prepared as before

fore, and ramme the Mould, mingled with Dung and Ashes close about it: Let it be digged every year in Autumne. The time to plant it is in April or May; it must not be transplanted for the first five yeares, nor the Boughs cut or pruned till it have attained eight. Graft it not, but upon it selfe, so will it beare fruit better in the species and number; in its transplantation you must take up as much of the soyle with its roots, as you can possible, and when you reset it, give it the like situation for Coast and Quarter that it had before.

Olives are intended for two uses when gathered; either to bee served up at the table in collation, or to make Oyle of the largest sort of Olive, is most proper for the table, the lesser more particularly convenient for Oyle: They must bee gathered with the least offence to the tree that may bee, the bruising of the branches with Poles as some use it in striking downe the fruit, makes the tree barren: The best way therefore is to ascend the tree by a Ladder, in faire weather (not so much for conveniency of the Gatherer; as for the profit comming from the Olive, which is not to bee taken from the tree, but when it is exceeding dry) and pulling them with your hand put them into a Wicker Basket, which you shall have carryed up with you to that purpose. Those Olives you intend to preserve or pickle, must not have that full ripenesse which is requisite for those you purpose to make Oyle of. The Olives which you keepe for Banquets must be full of flesh, firme, salt, large, and ovall; if you will pickle them, put them into an earthen pot, and cover them with salt brine or verjuice, or else with Honey, Vinegar, Oyle and Salt smally beaten. If you intend to keepe them long, by changing your salt brine constantly every two or three Moneths, you may effect it.

For the Olives whereof you are to expresse your Oyle, you must gather no more at one time then what may be made into Oyle that day, and the day following: before you bring them to the Presse let them be spred upon hurdles, well pick'd, and cul'd; let the hurdles not be too thick set with twigs, that the Lees and watry humor of the Olive (which if exprest with Oyle would make it extreame full of fatulency, and corrupts it both in the nostrill and Palate) may expend, waste it selfe, and drop through; some there-
fore

fore that this malignant humor may have a full definition before they bring the fruit to the Presse, make a high and well-raised floor, with provision of partitions to keep every dayes gathering separate; (which is, if your abundance be such that your Presse is not able to discharge you of them dayly) the bottome of these partitions must be paved with a decline descent, that the moistnesse of the Olives may flow away, and be received into gutters or little channels there provided for their transflux.

The Olives being thus prepared for the Presse, and the Presse readily provided of all things necessary, viz. of Fats, Vessels to receive your severall Oyles, scoopes to draw, and empty out the Oyle, Covers great and small, sponges, pots to carry out the Oyle, tyed about by bands or Cords of Hemp, or Broome-bark; the Mill-stones, Oyle-mills, Pressers, and all other instruments serving thereunto being very well cleansed, and the aire having been before as well heated by a plentiful fire; (if it be not warme enough by its naturall situation) for the assistance of heat makes all Oyle Liquors resolve and runne more gently and freely, whereas cold astringes, and detaines it. This Presse-house therefore should be so located, that it may enjoy a full admission and benefit of the South Sunne, that we may stand in need of very little fire, if any at all, such heat being no more assistant to the expression, then necessary to the corruption of the Oyle.

Carry your Olives thus cleansed to the Presse, under which put the whole in new willow baskets (the willow adding a beauteous and innocent color to the Oyl;) the Willow also something staying off the rude strokes of the Presse, that the Olives may be bruised with as little violence, and as much leisure as possible: Nor would it be inconvenient if their skin and flesh were a little broken at the first with a Millstone, so set, that it should not breake the Kernels, which would utterly spoyle the Olive, taking them from the Mill thus prepar'd: let them be stronger bruised in the Presse, and put foure pound of Salt to every Bushell of Olives. The Oyle which comes first is by much the best, and therefore called Virgin Oyle: the second which comes with more violent expression is fitter for Liniments then the Table: but the last, which is extracted from the drosse, and stones, is of no use but for Lampes; or such sordid employment.

The

The Tuns and Vessels wherein the Oyle is to be put, must be well dressed with pitch and gumme, made very clean with warme Lees, and carefully dryed with a sponge, into which you may powre your Oyle within thirty dayes after the expression of it, so much time being necessarily allowed for the settling the Lees, which by that will have grounded upon the bottome. The Cellars where the Vessels of Oyle are to be conserved, must be in a place of constant drynesse and coldnesse, heat and moysture being corrupters of the Oyle; provide therefore a Cellar on the North coast of your house: and for the better and more neat preservation of your liquor, poure it rather into glasse Vessels or earthen pots, which (if they be made capacious) are far more convenient then the pitch retainers we formerly spoke of.

*Accidents befalling Oyle, with their Remedies: and
how to recover frozen Oyle.*

IF (in the time of Winter) Oyle doth freeze together with his Lees, you must put into it twice boyled salt, which dissolves and clears your Oyle from all further apprehension of danger: nor need you entertaine a jealousie that it will be sale, since unchauncy matters (and especially Oyle) have seldome any relist of it.

To keepe Oyle from becoming ranke.

WHEN the Oyle begins to change from his first purity of taste to a disposed rankenesse; the remedy is to melt an equall proportion of wax and Oyle together, to which you are to mingle salt fried in Oyle before, this you must poure into the Vessel, which composition above the prevention of it, when beginning to grow ranke, effects an entire restitution to its simple purity, when already affected. Anniseeds cast into the Vessel by a particular attraction, performe the same operation.

To purifie troubled Oyle.

Some are of advice, that the applying it to the fire or Sunne cleares it. Others, if the Vessell be strong, cast into it boyling water: how these remedies agree with their former assertions, (wherein they declare heat so unnaturall to Oyle) is beyond my reconciling: I for my part, should rather make an experiment of Vineger, which being cast into the Oyle by degrees, hath such a penetrating and inquiring faculty over all the parts; that it would without doubt recompose it.

To recover Oyle corrupted in the Senn.

TO performe this, take green Olives, pound them, free them from their stones, and cast them into the Oyle: or else cast the crums of Barley bread mixed with corne salt; otherwise, infuse in your Oyle the flowers of Melilot: or else hang in the Vessell a handfull of the herb Coriander, and if you finde the putrifying quality yet unexpelled, cast in divers times of the same herbe, and which is better, change his Vessell: this ill odour others drive away thus: They take Grapes, pick out their Kernells, stampe them, and with Salt make them into a lump or lumps, which you must cast into the Vessell; and after ten dayes faile not to change it: Which must necessarily be done after the application of any remedy to Oyle growne ranke and purrified; the Vessell still imparting what the remedy recovers.

Wee have done with the Oyle Olive, after the manner of whose expression may bee extorted any unctuous matter of fruits, plants, or seeds, namely, Walnats, Filberds, Almonds (both sweete and bitter) Nutmegs, the Kernells of Peaches, Pine Apples, Admirons, Cherries, Plums, Pistaches, the seeds of Line, Rape, Cole, Mustard, Hemp, Poppy, Henbane, the seeds or Pipins of Apples, Prunes, Cucumbers, Gourds, Melons, and other such like: But that wee may give the Reader a more cleare dilucidation of the manner of preparation, Wee shall briefly discover the method used in the expression of Oyle from Almond and Nutmegs, which will easily make

make him apprehend all the rest; the particular reason which perswades mee to introduce the example of Almonds, is because I have purposed before I finish this concluding Treatise, to discourse particularly of the planting the Almond. Whole Oyle if to bee taken inwards, is to bee thus expressed.

Fill the Almonds after they have steeped some time in warme water, pound them in a Mortar of Stone or Marble with a wooden pestle, make them up in little Lumpes or Loaves, which you may knead with your hands against the vapour of warme water, or put them in a glasse vessell of a large content, for some foure or five houres: (let the seate and Glasse bee so contrived, that it may rather bee above the water to receive the vapour on its sides and bottome, then in it) the Almond being thus mollified by the disposition of the moisture, must bee put into a haire cloth or hempen bag, and laid in a presse, whose bottome must be wel heated, hollow, and bending downewards to give the better delabency for the Oyle thus expressed, you may bake the drossy part of the Almonds under the Ashes, which in time of necessity will serve for bread, of plenty for a dainy and fatning food to your Poultry. This Oyle is of soveraigne excellency to mitigate and remove the throwes and gripes of women newly delivered, and to aswage the paines of the Collick or Reines, taking it in two ounces of white Wine, or one of *Aqua vita*; the Line, Cole, Rape. Walnut, and other need not these curious preparations, and their Cakes are of unmatchable nourishment to fatten Kine and other Cattle.

Oyle of Nutmegs.

Oyle of Nutmeg (which in the South part of VIRGINIA not subject to any inconveniences of cold would undoubtedly flourish) is thus made: bray them with a wooden stamper, afterwards presse them out, the planks being very well heated; to extract it more rich, divide them into little heapes, and steeps them three dayes in very good Wine, after dry them in the shadow of the Sunne two whole dayes, then heate them reasonably in a frying pan upon the fire, sprinkling them with Rose-water, and presently presse them. This I judge conveniently sufficient for Oyle.

Let us descend to the planting of the Almond-tree, which as it hath a peculiar excellency, so without dispute returns as ample profit.

Of the Almond tree.

THough the Almond tree delight particularly in gravelly places, of which VIRGINIA is too rich to afford a convenience; yet there is no dispute, but if the Mould wherein you plant them bee mingled with Oyster-shells, or such like, of which there is to bee found inexhaustible Quantities, they will have a greater virtue then gravell to the quickning and ingerminating of this tree; having the perplexed hardnesse of gravell and unctuousnesse of marle united. The soyle thus prescribed; let the seat of your Almond be in a hot place fully exposed to the South or South-West, and it will not onely flourish to your expectation, but its fruit will bee excellently qualified, and in vast abundance: It groweth very well of the stone, which because it cannot bee procured new should be kept close in a Vessell of earth; to be transported, set it as you would your Peach; it thrives very well too of the branch or scion, which must bee cut from the top of the tree, and planted as the Olive, the earth rammed very hard about it, and prepared as before, both the stone and the scion should bee steeped for the space of twelve or foure and twenty houres in horned water; the best season to set or plant it in VIRGINIA, is in October and November. This tree will bee of admirable use there, in regard that both that and the Olive will hinder no undergrowing Come; let neither this tree nor your Olive grow above ten foot in the stock, and in this as in Olives, if you see any branch aspiring higher then his neighbours, repress such ambition by cutting him off, otherwise hee will divert all the sap of the tree into his owne body, and leave his fellows in a starving and perishing condition; amongst which if you maintaine equality, they will altogether content in gratitude to returne you a plentiful Harvest.

The barren Almond tree will become fruitful if you lay open his Roots in Winter, or else if you pierce some part of the stock close to the earth, and put through the hole a wedge of Oake, wetting it about with Asie Urine.

The

The bitter Almond will bee capable of bulcoration, if you lay round about his bared Root Swines dung tempered with Urine, casting afterwards much mould upon it, this must bee practised yearly, till hee bee perfectly reclaimed, you will finde the same effect if you bore a hole in the stock of the tree, and put therein a wedge wrapped about with cloth dipped in Hony. Beasts by browsing and cropping of the first and tender branches, change the nature of sweet Almonds into bitter Almonds, are gathered when their Huskes through the heate of the Sunne begin to divide; (I should therefore advise that those made choice of to set, may bee taken before such exact ripenesse; that the heate of the Sunne may not exhale their generating vigour) if when you have beaten them downe you shell them altogether, and wash them in brine, they will become white, and bee preserved a long time; caucionarily that you dry them in the Sunne; their repository or granaries must have good open admistrories for an unmoist aire, and lye upon that Coast that is most open to the North-West, being the driest winde in that Country.

The Medicinall excellency of Almonds, is, that they are good for those which are troubled with a clammy heame in their throat, with weak lungs, and such as are subject to the gravell in the Reines or difficulty of Urine, they are great restorers to nature, and fortifie the parts tending to generation; nor is it only beneficiall in its fruit, for the Gumme also of the Almond tree arrests the spitting of blood.

Of the Fig tree.

THE Fig-tree groweth with an unuasual celerity, as beginning to beare the second yeare from his planting, and is of that nature, that during a moneth or five weekes when Grapes are ripe, and good to eat, the Figge also is at that season dayly mature, and fit for the palarce, it may bee planted as the Vine, and affects the same soile; such as have roots grow sooner, but without doubt the branches continue longer; the order you observe in planting the Vine adheare too in this, and it will prosper. The fittest season to plant it is in October, and the succeeding Moneth to the 15. or

twentieth : You shall cause them in planting the better to take root, if you loosen the barque, or which is better bruise it gently at the nether end of the stemme about halfe a foot. To cause them to bee fertile, and bring forth fruits remarkable for fullnesse and verdure, put to his root rich Mould beaten and tempered with the settlings of Oyle Olive, and mans dung, or which I like better then this stercoration if it have already a benigne soyle, crop the tops and ends of the branches when they first spring.

To reclaim a wild Fig-tree, water him at the roots with Wine and Oyle mixed together.

If you make a composition of an equall quantity of salt brine and water bestow this irrigation in a small trench round about the body of the tree, your Figges are prevented from unripe fallings.

To have early Figs, water the tree with Oyle and Pigeons dung, if your ambition be not only to have the earliest, but the latest, take away the first Buds, when they are about the bignesse of a Bean.

To keepe or preserve them, lay them in a pot of Honey full and well stopp'd, but so that they neither touch the sides of the pot, nor one another. Or take an earthen pot (the Figs being put in) stop it close, and immerge this Vessel to another full of Wine, no raine or corruption will possesse your Figges so inclosed, while the Wine retains his goodnesse.

The plant steeped in brine, or the end thrust into a Sea Onion, becomes much more fruitfull when planted.

This fruit is of great vertue in making the belly soluble in a bundance of nourishment and provocation of sweat, dried and mingled with the flower of Linseed or Fennigreeke, it resolveth and killeth all Impostumes, and hard tumours, in decoctions it assists much in driving away of the Cough, and difficulty of breath, which last vertue the fruit also expresseth very happily, if steeped in *Aqua vita*, the night precedent, and taken every morning during the dominion of this disease after you, the Milke of the Fig-tree dropt into the eare killeth the Wormes in it, the Leaves of the Fig-tree rubbed doe provoke the Hemorrhoides; the Juice of Figs is of equall felicity in opening them, which to increase his excellency amends all roughnesse, ill conditioned scabs, small pocks, purples, freckles, ring wormes, and other eye and belemities of the face

(65)
face or body therewith anointed, being first tempered with the
flower of parched Barley, a little Cotton wool dipped in this juice,
and layd upon the aking tooth will wagher the paine.

Of the Pomegranate tree.

THE Pomegranate tree, which may be planted either from
the Branch or succour, is one of the most absolute encouragers
of an idle person in the world; provided, it be exempt from the
intemperate operation of the cold, neither the torrid heat of the
Sun, nor the barrenesse of the Soyle, that make him forgoe his
glorious Rubies; no culture or dressing is required by it: yet if it be
set in a rich soyle, it will be sure to make an advantage of it to his
owne flourishing, and your profit: the wine thereof (for it affordeth
Wine as well as excellency of fruit) may be made after this manner.

Take the ripe kernels, freed and cleansed from their skins, put
them into the Presse, and exact the Wine, keep it in Vessels till it
is fully fined from all working, which finished, distribute such a
quantity of Oyle as may float over all the top of the Vessel, and this
preserves it from sowing or corruption.

The Pomegranate apple put in a pot of new earth, well covered,
and Luted with cloy, and set into an Oven so long, till the Fruit
may be resolved into powder, is of very Francey vertue; for
(taking the weight of half a crown thereof in red Wine) it mira-
culously stops the Bloudy flux. It is also good in divers diseases of
women, which (because they are more arcanely peculiar to that
Sex) I shal forbear to speak of.

Of the Quince tree.

THE Quince tree groweth much sooner from the Root then
Branches: it delighteth in a soyle of a moyst and cold nature,
and would therefore be planted towards the more umbragious and
coole corner of your Garden. The Garden, or reclaimed Quince,
beareth two sorts of fruits, to which curiosity hath assigned Sexes,
and they are called the Quince and Quinceffe; the Male, which is
the Quince, is of a more wrinkled, drye, redolent Fruit, and gol-
den colour then the Quinceffe. If you graft the Male upon the Fe-
male, or *Escauer*, the Quince thence proceeding will be tender,
and

and may be eaten raw, which without such an Hermaphrodite must of necessity have been prepared, to which nature, rather than to eate it crude hath designed it. The use of Marmalade, and its preparation is so publickly known, that it is unnecessary to repeat it.

It is not enough to enjoy the delight of these fruits for the Summer only: The Winter too in reason should claime a part of our Summer contentments, which cannot bee better expedited then by drying such fruits as are capable of arefaction, and agreeable when dried, the principall whereof are the Vine or Grape, the Fig, the Peach, and Apricot.

How to dry Grapes, that they may bee kept.

YOUR Grapes being at their full ripenesse, select the fairest out of your Vineyard, for such quantity as you shall use, let them lye thin spread while you prepare a Lye for them, made of faire water and Ashes, proceeding onely from the cuttings of the Vine without any other mixture of wood whatsoever: seeth this lye till you have made a strong and cleare liquor, then taking or straining away the Ashes, put the liquor into a cleane Caldron, set it againe over the fire till it bee ready to seeth: then tying the stalkes of your Grapes with thread, and fastening the thread to such sticks and in such order bunch by bunch, as Chandlers use to dip their Candles, which dip them into this lye foure or five severall times: Which done, let them dry in the Sunne, either so hanging on their sticks, or which is better upon Lattices or Hurdles of Rods, or the like, untill they bee conveniently dry; then barrell them, pressing them very hard and flat in the Vessel, others dry them upon such Lattices or Hurdles without steeping them even as they come from the Vine, and peradventure more successfully.

How to drie Figges.

IF they (as the Grape) bee gathered very ripe: then lay them out and spread them upon Hurdles or Lattices of Reeds or Olier joyned together with rifts or vacancies betwixt the covering of those

those Others, that the aire transpiring through those voyd spaces may assist the Sunne in the drying them; but you must bee cautious that during their exposure to the open aire no Raine or Dew incommode them: Which they are dry barrill with the same poise of pressure used to the Grapes. Others take a bigge Reed or Cane of two or three foot in length, boring little holes all the length of it, through which they put little sticks of two foot extent, being the small and sharpe upon which they thread the Figs, till they are very full of them, and so hang the Cane in the Sunne, which dried they barrill up using the same course as before.

How to dry Peaches and Abricots of all sorts.

VHen they are very ripe, pare off the upper skin, cleave them into foure quarters, dry them as you did your Figs, barrill them and keepe them for the Winter.

The manner how you shall prepare them to eate is this; provide an earthen pot, and after you have washed your Peaches in faire water, put them into the pot with as much Wine as will cover the Peaches, then seeth them halfe a quarter of an houre: They may bee made ready without boyling thus; let them infuse thre or foure dayes in Wine, (which way they are much better) put to them beaten Cinnamon, and thus they will last a Month in the Wine, eate every morning they are very wholesome; and provoke a good appetite.

The fittest seasons for sowing of seeds.

TO prescribe Rules according to our Climate, to that of VIRGINIA, may have much of affection; but without all peradventures, little of Wisdome. Wee must therefore seeke for a nearer correspondence in parallels. Having therefore sent some letters of an ancient date written by Frenchmen, then employed in VIRGINIA, to their Intrusters, wherein they confesse that of all the Provinces of FRANCE: None came so neare to that noble Countrey, as LANGUEDOCK and PROVENCE, two of the Eyes of that Kingdome, abounding withall the delights and delicacy

easy that ITALY can pretend to, or SPAIN boast of; I could not but apprehend that their times of sation and infision, of planting and replanting, might in some measure correspond with that place where the English are now seated, and having seen a regular distribution of the moneths and seasons in the yeare for sowing, grafting, and other offices belonging to the industrious Lovers of Agriculture; I should both unsatisfie my owne conscience, and disoblige that Countrey, and its Christian Inhabitants, if I did not publish it with the same resentment of affection I received it; not that any should bee so pinioned to these Precepts, that neither weather, inconveniency, or want of opportunity should make him recede from the punctuall observation of them: But I speake it out of a very strong confidence that the observations of the seasons according to these prescriptions will sort well with VIRGINIA in general, and the Planters in particular, to whom it is intended, and indeed it is as exact a Directory as any yet published.

I am not ignorant that Criticks will laugh at this; much good doe it them, and why so many Moneths for the same seed? Why so many Repetitions? My Exceptionist forgets that wee not only covet to have things early, but their continuance: Will it offend him that wee have Archookes in May? and July both? Because wee may have Cabbage, Lettise in April, shall wee bee forbidden to have any in May: the principall scope of this director was to show how long such and such seedes might bee continued to bee sown, and in what Moneth and Moone, if hee apprehend it not; I can send him to no Moneth, but that of June, nor Moone, but that of Midsummer.

He that will sow seed, must know that.

Some may
be sowed at
all times of
the Moneth
and Moone,
as

Asparagus,
Colewort
of all sorts,
Spinage,
Lettuce,
Parinips,
Reddish.

New

Others would be sowed in
a certaine Moneth and
Moone, as there must be
sowed in February, the
Moone being

Full

Spike
Garlike
Borage
Bugle
Chervil
Coriander
Gourds
Water cresses
M. rans
Palm Christi
Flower gentile
White Poppy
Purslane
Raddish
Rocket
Rosemary
Sowth
Dandelion
Thyme
Anise
Viola
Bites
Skirwort
White Chocory
Fennel
Parsley
H. y. Thyme
Cole Cabbage
White Cole
Green Cole
Cucumbers
H. y. Thyme
Samplings
Diers graine
Spinage
Cabbage Lettuce
Lettuce
Onions
Lentils
Broom
Lentils

Old

Full

Old

L. i.

Sow

Sow in March the Moone being

New	Garlick	Sow in April the Moone being	Full	Majorane
	Borage			Flower gentle
	Chervil			Thyme
	Carrottes			Viola
	Gouttes			Apples of Love
	Majorane			Marvellous Apples
	White Poppy			Artichokes
	Purslane			Cabbage Cole
	Radish			Citrons
	Garrell			Harris-horne
Old	Double Marigold	In May in the old of the Moone	Full	Sampire
	Thyme			Gilly flowers
	Viola			Blessed Thistle
	Anise			Gourds
	Bleue			Radishes
	Shiraz			Medow
	Secore			Green herbs
	Apples of Love			White anecory
	Marvellous Apples			Cabbage Lettuce
	Artichokes			White Succory
Fall	Basil	In June the Moone	Full	
	Thistles			
	Blessed Thistle			
	Cole Cabbage			
	White Cole			
	Greene Cole			
	Citrons			
	Cumbers			
	Harris-horne			
	Sampire			
Old	Diers grain	In July the Moone	Full	
	Spinage			
	Gilly flowers			
	Nyctop			
	Cabbage Lettuce			
	Melons			
	Onyons			
	Flower gentle			
	Burnet			
	Leekes			
Savery		In August the Moone being	Full	

Herbes

Herbes growing of seedes that are sowne may bee transplanted at all times, except Chervils, Arrage, Spinage, and Parsley, which are nothing worth when they are transplanted; ever observed that such transplantation bee in a moist, rainy weather, otherwise they must bee very diligently watered.

You may take notice that the choise and age of seedes is double, in chusing them you are to regard that they bee ripe, full, heavy, firme, grosse, and of a good colour, not falling to powder through rottenesse or bruises.

Some grow better of new seedes, as Leeks, Cucumbers.

Others grow better of old seeds, as Coriander, Parsley, Savory, Batts, Origanum, Cresses, Spinage, Poppey.

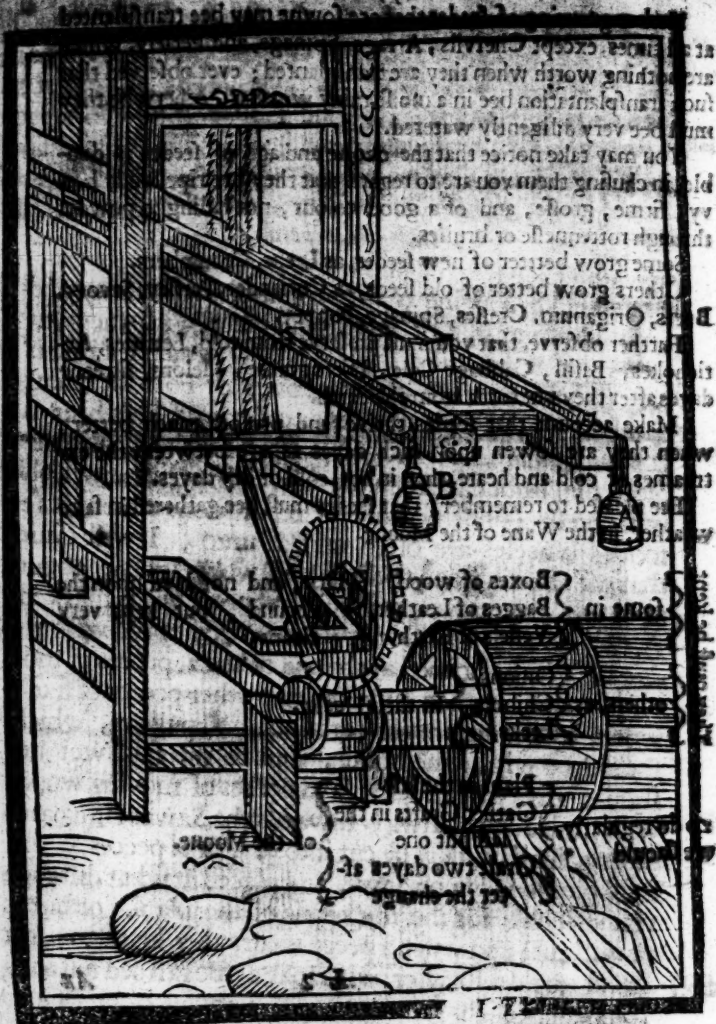
Further observe, that you must preserve from cold, Lettises, Artichokes, Bassil, Cabbage Cole, Diets graine, Melons, sittene dayes after they put forth from the earth.

Make account that seedes thrive and prosper much better, when they are sown upon such dayes as are betweene the extreames of cold and heate, then in hot, cold or dry dayes.

Bee pleased to remember, that seedes must bee gathered in faire weather, in the Wane of the Moone.

They must be kept	{ some in	{ Boxes of wood,	{ Dry, and not layd upon the
		{ Bagges of Leather,	
		{ Vessels of Earth,	cleane.
others, as	{	{ Onions,	{ In their Huske.
		{ Chibols,	
		{ Leeks,	

to do regularly, we should	{	{ Plant in the last	{ of the Moone.
		{ Gather Grafts in the	
		{ last but one	
		{ Graft two dayes af-	
		{ ter the change	



*An Explication of the Saw-mill, or Engine, wherewith
force of a wheele in the water, to cut Timber
with great speed.*

THIS Engine is very common in Norway and Mountaines of Sweden, wherewith they cut great quantity of Deal-bords; which Engine is very necessary to be in a great Towne or Forrest, to cut Timber, whether into planks or otherwise. This heer is not altogether like those of Norway: for they make the piece of Timber approach the Sawes on certaine wheels with teeth; but because of reparations which those toothd wheeles are often subject unto, I will omit that use: and instead thereof put two weights, about 2. or 300. pound weight apiece, whereof one is marked A. the other B. The Cords wherewith the sayd weights doe hang, to be fastned at the end of the 2. peeces of moving wood, which slide on two other peeces of fixed wood, by the meanes of certaine small pulleys, which should be within the house, and so the sayd weights should alwayes draw the sayd peeces of moving wood, which advancing alway towards the Sawes rising and falling, shall quickly be cut into 4. 5. or 6. peeces, as you shall please to put on Saws, and placed at what distance you will have for the thickeffe of the planks or bords ye will cut: and when a peece is cut, then let one with a Lever turne a Rowler, wherto shall be fastned a strong

Cord which shall bring backe the sayd peece of wood,
and lift again the weights : and after put aside the peece
already cut, to take againe the Sawes against another
peece of wood. Which once done, the ingenious Artift
may easily convert the same to an Instrumēt of thresh-
ing whear, breaking of hempe or flax, and other as pro-
fitable uses.

P I N I S.

